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No. 532

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CONTENTS PAGE

AUTOMOTIVE AND TRACTOR INDUSTRY

Kama Truck Plant Proposes Full Factory Servicing
(A. Malyshev; TRUD, 20 Jan 80).......................... 1

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

Decree's Impact on Capital Construction
(Yu. Khrakovskiy; STROITEL'NAYA GAZETA, 16 Dec 79)...... 5

Decree's Impact on Project Planning
(V. Alekseyev; STROITEL'NAYA GAZETA, 6 Jan 80).......... 8

Ministry's Attachment to the 'Gross' Charged
(V. Danilov; STROITEL'NAYA GAZETA, 9 Jan 80)............ 11

Joint Research Efforts Bear Fruit
(G. Usov; STROITEL'NAYA GAZETA, 16 Jan 80).............. 15

Review of Practical Use of Net Output Indicator
(A. Deminov, et al.; PLANOVOYE KHOZYAYSTVO, No 11, 1979).. 17

Statistical Service's Contribution To Improve Capital Construction
(A. Belyakov; VESTNIK STATISTIKI, No 11, 1979).......... 26

Problems of Increasing Efficiency of Capital Construction
(S. Movshovich; SOVETSKAYA LITVA, 16 Oct 79)............ 38

Improve Methods of Contribution Payments
(S. Strenze; SOVETSKAYA ESTONIYA, 14 Nov 79)............ 42

CONTENTS (Continued)

Page

Importance of End Result in Construction Industry Stressed
(L. Sokk; SOVETSKAYA ESTONIYA, 20 Nov 79)............. 45

Review of Accomplishments in Moscow During 1979
(GORODSKOYE KHOZYAYSTVO MOSKVY, Dec 79)............... 49

Measures for Improving Housing Resources in Moscow Described
(V. F. Shcherbakov; GORODSKOYE KHOZYAYSTVO MOSKVY, Dec 79).. 57

Improvements in Architectural Appearance of Moscow Buildings Described
(Ya. V. Farfel'; GORODSKOYE KHOZYAYSTVO MOSKVY, Dec 79).. 64

Stimulating High Quality Through Bonuses
(EKONOMICHESKAYA GAZETA, Nov 79)...................... 69

Greater Use of Monolithic Housing Construction in Ukraine Urged
(Yu. G. Repin; STROITEL'STVO I ARKHITEKTURA, No 8, 1979)....................................... 71

Architects To Have Greater Role in Rural Construction
(V. Vishnyakov; STROITEL'NAYA GAZETA, 23 Dec 79)...... 85

Problems, Possibilities for Cement
(Various sources, 9, 13 Jan 80)...................... 89

Construction Projects Lack Cement
Production, Cement Grades Problems
Improved Quality of Cement

AUTOMOTIVE AND TRACTOR INDUSTRY

KAMA TRUCK PLANT PROPOSES FULL FACTORY SERVICING

Moscow TRUD in Russian 20 Jan 80 p 2

[Article by A. Malyshev, deputy general director of KamAZ: "Firm Servicing of Motor Vehicles"]

[Text] During the current five-year plan, the Kama Association [KamAZ] will produce several hundred thousand trucks, tractor units, dump trucks and diesel engines. The new make of vehicles have proven dependable in operation and capable of achieving high efficiency in the transporting of national economic freight. Of the 800,000-825,000 trucks planned for production by the nation's plants this year, the KamAZ trucks will be 14 percent, and in terms of the freight carrying capacity their proportional amount will exceed 30 percent.

The low axle load which does not exceed 6 tons makes it possible for the KamAZ trucks to be used by the entire road network without damaging them. Inexpensive fuel, maneuverability, easy driving, the comfort of the driver's seat, and the economic consumption of spare parts--all of this is to the liking of the transport workers. The quality level of the vehicles produced by the association can be seen in the fact that many of them have already been driven 300,000-350,000 kilometers without any overhaul.

However sooner or later the moment comes when the vehicle must be overhauled.

First-rate equipment requires first-rate and highly skilled maintenance. It cannot be overhauled under primitive conditions, each doing what he can. This, as they say, ends up expensive. Let me give a few figures. The life of an engine after an overhaul done at a specialized plant is 80 percent of the life of a new one, while the life of one repaired in small shops is just 34-45 percent. Thus, from the increase in the life of the power units overhauled on an industrial basis at just one plant turning out 100,000 motors a year it is possible to obtain an economic effect equal to the operation of 40,000 new vehicles.

But still the basic share of automotive repairs is done at poorly equipped small enterprises which operate at a loss. The system employed up to now for supplying trucks with spare parts through the Goskomsel'khoztekhnika [State Committee for Agricultural Equipment] services has proven inflexible and does not guarantee the complete satisfying of the demand of numerous motor transport enterprises.

The desire of the Goskomsel'khoztekhnika organizations to fulfill the sales plan at any price has led to a situation where at many warehouses the above-standard spare parts inventories exceed the year's supply. According to the data of the Gor'kiy design and engineering institute of the USSR Minavtoprom [Ministry of Automotive Industry], 220 million rubles worth of spare parts are produced annually above the norm. At the same time, thousands of vehicles stand idle because of the parts shortage. For example, in 1959, for this reason 5.3 percent of the KamAZ fleet did not operate. Each year the state loses up to 1.5 billion rubles from the scattering and excessive stockpiling of spare parts.

The solution lies in developing centralized repairs. A higher technical readiness of the automotive fleet can be achieved only in an instance if the plants directly supply their vehicles with spare parts, units and assemblies through an extensive network of specialized automotive centers. Everything should be from the firm, beginning with the planning and manufacturing of the spare parts and ending with their delivery to the consumer.

Moreover, we feel that the plant should assume full responsibility for the vehicle produced by it, and keep track of it not only during manufacturing and testing, but also after the customer has taken it over. This indispensable condition for improving the efficient operation of the KamAZ will be fully observed with the development of a nationwide system of automotive centers belonging to our association. Here they will accept engines and units requiring rebuilding, regardless of the reasons for the breakdowns, and send them to the plants of Minavtoprom. The designers and production engineers will be informed of all defects and failures in order to root out "creeping" defects. The actual consumption of spare parts depending upon the operating conditions of the KamAZ trucks will be studied and analyzed. On the basis of these data, the spare parts should be efficiently distributed to the centers, and corrections made in their production and delivery plans.

The operating experience of such centers has produced good results. KamAZ was the first in the nation to introduce the new customer relations system. At present, in the nation there are over 100 Tsentrkamaz [KamAZ Centers] in operation. And their number is increasing. They will operate in virtually all oblasts of the nation. To some our automotive service system is reminiscent of the VAZ [Volga Automotive Plant] system, but here there are more differences than common features. VAZ is exclusively concerned with the owners of private transport, and where else could they turn for help in overhauls? But we work with state enterprises which on a planned basis carry out all technical questions involving the KamAZ trucks. And we do not intend to take over from them. Our concern is first of all to provide high quality repairs on the vehicles, as well as check the condition of the assemblies and units of the KamAZ vehicles. We carry out major overhauls on engines as well as individual assemblies and units on an industrial basis similar to mass production. The diesel engine workers have developed the rebuilding of power units. The overhaul of drive axels has been organized at the parts plant.

We see a double benefit from such a procedure. In the first place, factory overhaul guarantees a longer service life for the vehicle. Moreover, the "firm" servicing provides a quicker disclosure of the true guilty parties of the problem. Secondly, it becomes easier to figure the real demand of the various regions for spare parts for our vehicles. It does happen that in the motor pools KamAZ assemblies are installed on "foreign" units.

All of this is well and good. But we are still working in amounts which clearly do not meet the needs of the sectors using the KamAZ vehicles. In 1978, 4,500 engines were overhauled, and since the starting up of the plant, around 20,000. This is very few. The overhauls must be carried out in temporary facilities. Because of the sharp increase in the fleet of our vehicles, further overhauls on such a "paltry" basis will become impossible.

At present a plant is being built in Naberezhnyye Chelny for the major overhaul of engines and units. The estimated cost of the plant is 125 million rubles. But even it will not solve the problem. It is being built very slowly. The USSR Ministry of Power and Electrification has not carried out the required amount of construction and installation work. In 1978, only 1 million rubles worth of work was completed, and in 1979, 1.5 million out of the planned 11 million. But this is not the only problem. It is essential to build five other plants in different regions of the nation with a capacity of at least 50,000 major overhauls each. Only then can we ensure the overhauling of the 1.5 million large Kama trucks and the million engines for them. In considering the losses mentioned above (1.5 billion rubles annually), the cost of building the plants will be repaid shortly after they are completed. As one can see, the game is worth the candle.

But still the increase in the KamAZ fleet as well as the "aging" of the previously produced vehicles raise a multiplicity of problems. Our enterprises are already experiencing an acute need for the major overhaul of electrical equipment, brake systems and a number of other assemblies. We are unable to provide these repairs. Also disconcerting is the fact that certain supplier plants such as the Borisov Avtogidrousilitel' [Automotive Hydraulic Actuator] Plant, the Yaroslavl' Diesel Equipment Plant, and the Michurinsk Motordetal' [Automotive Part] Association supply us with poor quality products and this increases the scarcity of such parts as belts, packings, gaskets, light bulbs and filters. These questions must be solved in parallel with the expansion of the network of automotive centers.

Another problem is that for carrying out routine repairs on the KamAZ vehicles, because of their design features, special garage and diagnostic equipment and hydraulic and pheumatic tools are required. No plant in the nation produces them.

One other important circumstance. Many of the KamAZ vehicles break down ahead of time due to the unavailability of the recommended grades of lubricants for the enterprises. The oils, lubricants and special fluids for them are not available at any public service station and at a majority of the petroleum bases of Glavneftesnab [Main Administration for the Supply of Petroleum Products]. The drivers are forced to supply the vehicles with haphazard substitutes at their own risk and peril.

The firm servicing of the KamAZ vehicles and the cooperation between manufacturers and operators are a very promising thing. Such cooperation will provide the best utilization of the motor vehicles and will help to raise the efficiency of transport operations. And this at present, as L. I. Brezhnev said at the November (1979) Plenum of the CPSU Central Committee, is one of the important tasks.

10272
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

DECREE'S IMPACT ON CAPITAL CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 16 Dec 79 p 3

[Article by Yu. Khrakovskiy, candidate of economic sciences, in a feature edited by Prof A. Mitrofanov, doctor of economic sciences: "The Five-Year Plan--A Working Plan"]

[Text] The decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Increasing the Impact of Economic Instruments on Production Efficiency and the Quality of Performance" has set up a system and procedure for drafting multiannual plans. The principal form used in planning the country's economic and social development and the basis of organizing economic activity is to be the 5-year plan. It is to be compiled on the basis of a system of scientifically sound technical-and-economic norms and standards pertaining to types of work, expenditures of labor, raw materials, supplies and fuel and power, and also standards pertaining to the utilization of production capacities and capital investments.

Beginning with the 11th Five-Year Plan USSR ministries and departments and councils of ministers of union republics will be assigned stable 5-year plans for capital construction (with assignments broken down by years) which have been balanced against resources of materials, manufacturing and power generating equipment, labor and financial resources, and also the capabilities of construction and installation organizations.

Plans of contract work will be drafted simultaneously with the drafts of capital construction plans. Their distribution both among contractors and also among clients will make it possible to eliminate all vagueness as to responsibility and to achieve internal consistency and interlinkage, which will make all participants in the investment process more accountable for performance of what has been planned.

The present absence of that kind of linkage and consistency in a number of cases has the result that certain construction sites and projects included in the plans of clients are left out of the programs of construction organizations. In certain cases there are discrepancies between the plans of the customer and the contractor concerning dates for activation and the amount of work to be done at the construction site.

The decree envisages performance of a number of measures aimed at ensuring stability of the 5-year plan and at transforming it into a working document that defines and regulates productive and economic activity of construction and installation organizations and the superior levels of management.

The most important of these measures are the following.

First--maintenance of stable wholesale prices in industry, of estimate prices in capital construction and of freight rate schedules.

Second--planning of existing production and new construction as a unified whole. This means that the volume of production at enterprises will first be planned by virtue of activation of internal potential: introduction of improved manufacturing methods, raising the shift coefficient of equipment operation, and so on. Capital investments to develop the branches of material production will be allocated in 5-year plans for the planned growth in the volume of output and services.

On the basis of this basic principle and also taking into account the need to raise the efficiency of social production, physical resources and equipment and the necessary limits of capital investments, construction and installation work and contract work will first be assigned to the reconstruction and retooling of existing enterprises. Funds to expand existing enterprises and build new ones will be allocated only in those cases when the needs of the economy for the given product cannot be met by existing enterprises even if they undergo reconstruction and retooling.

At the present time the relative share of capital investments going to reconstruction and retooling of existing enterprises is below the figure set in the 5-year plan. The reason is a lack of motivation on the part of builders to execute projects in existing shops, which is considerably more complicated than building new projects, and this lowers their performance indicators, detracts from utilization of construction machines and machinery, increases the relative share of manual operations and makes the operating conditions more difficult. As a result labor productivity drops, and that means less profit and smaller economic incentive funds.

In a number of cases it is also more complicated for customers to carry out reconstruction of an existing production operation than to build a new shop.

The decree calls for a number of steps to be taken to motivate both customers and builders to give priority to projects involving reconstruction and retooling of existing enterprises.

The third measure aimed at transforming the 5-year plan into a working plan is the drafting and approval as part of 5-year plans of lists of existing enterprises scheduled for reconstruction and expansion and also lists of new construction starts on enterprises and installations along with their principal technical-and-economic indicators. The existence of these lists will substantially restrict the scale of new construction, will make it possible for customers to prepare all necessary project plans and estimates in good time and to deliver them to builders.

On the basis of these lists of construction projects and also the limits of capital investments and construction and installation work, project plans, cost estimates and standard construction times the title list will be worked out over the entire period of construction, with a breakdown of assignments by years.

If work at the site has been done in a smaller volume in the past year than was called for in the title list, the lag is to be made up in the following year. In this respect the decree points directly toward making the 5-year plan a working plan.

An essential factor that will promote stability of the 5-year plan and its transformation into the principal form of planning and a working plan is the decree's instruction to the effect that fulfillment of the 5-year plan is to be evaluated at all levels of economic management in terms of the cumulative total from the beginning of the 5-year period, and the targets of the annual programs are to be set at least at the level of the assignments of the 5-year plan established for that year. This will put an end to the abnormal situation in which every year the drafting of plans begins as it were from scratch and is not tied to the 5-year plan. This leads to a situation at a number of construction sites where annual plans are fulfilled, but the assignments of the 5-year plan for activation of capacities and projects are not fulfilled.

The existence of stable 5-year plans of contract work worked out in detail will create for construction ministries and departments and also their constituent organizations the conditions necessary for timely drafting and fulfillment of plans for development of their industrial capabilities and for enlargement of the capacities of contract organizations in those regions where available capacities are not sufficient to meet the volumes of capital construction planned for the 5-year period

Enterprises figuring as clients will be able on the basis of stable 5-year plans to prepare fulfillment of the plans in a timely and competent way. Here we are referring to the preparation of technical documentation, orders of manufacturing, power and nonstandard equipment, preparation of the site, and so on. Thus the 5-year plan is becoming a working plan not only for the builders, but also for the clients.

7045
CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

DECREE'S IMPACT ON PROJECT PLANNING

Moscow STROITEL'NAYA GAZETA in Russian 6 Jan 80 p 3

[Article by V. Alekseyev, chief of the division for standard design preparation and the organization of project planning and surveying work of USSR Gosstroy: "Unused Potential for Creativity"]

[Text] Project planning is an exceedingly important link in the entire many-sided process of creating fixed capital, which is what determines the technical-and-economic level of production sectors and the national economy as a whole. The efficiency of construction and a radical improvement of affairs in that sector also depend to a considerable degree on the planning, organization and quality of project planning work.

Cases are still not uncommon when institutes issue technical documentation of poor quality and do not properly take into account progressive advances of science and technology and advanced know-how. It takes a long time to prepare it, to clear it, and get it approved. Reliable determination of the estimated project cost results in serious disruptions in the process of construction. Schemes governing the development and location of the sectors of the economy, industries and the productive forces among economic regions and union republics have not become the basis for project planning, and as a consequence project planning and surveying work has been planned without the requisite linkage to capital construction plans.

An analysis shows that the procedure for preparing technical documentation has become outdated and is in need of radical modification. The decree of the CPSU Central Committee and USSR Council of Ministers on improvement of economic instruments indicates the principal directions for improvement of cost estimating in project planning. USSR Gosplan has been ordered to draft programs for solving major regional problems and for shaping and developing regional industrial centers and to compile summary capital construction plans for them. Now USSR ministries and departments are to have the assistance of councils of ministers of the respective union republics in preparing schemes governing the development and location of the sectors of the economy and industries and to approve them by agreement with USSR Gosplan. The schemes will serve as the basis of 5-year plans of capital construction and project planning and surveying work.

Compilation and approval by USSR Gosplan of an instruction that states the format and content of these schemes, which are to contain the necessary data on scheduled construction projects, and the procedure for their preparation, clearance and approval will accordingly have to be speeded up. As to format, the 5-year plans are to include lists of new construction projects and of enterprises and installations undergoing reconstruction and expansion along with certain technical-and-economic indicators. On the basis of these lists, limits of capital investments and contract work, project plans and cost estimates, and standard construction times title lists will be compiled and approved as a planning document that will not be changed over the entire period of construction and will be binding upon customers, contractors, planning, financial, banking and supply agencies, and equipment suppliers.

The network and physical plant and equipment of project planning and surveying organizations are to be developed in accordance with the 5-year plans. Definite work is being done along these lines. USSR Gosstroy has outlined a plan containing measures which call specifically for the drafting and revision of a number of normative documents, instructions and manuals necessary to support operation under the new conditions of economic activity.

The subdivisions of USSR Gosstroy, with the help of a number of ministries and departments, scientific research institutes and state project planning institutes are preparing methods manuals on compiling 5-year plans for standard and experimental designing, on the procedure for drafting technical documentation for construction and reconstruction of enterprises in industry and other sectors of the economy and also housing and public works projects and complexes on a competitive basis. In view of the importance and urgency of this work, our interest is aroused by the proposals of specialists capable of performing it effectively. We are therefore following with particular attention the discussion of this topic being conducted in the pages of STROITEL'NAYA GAZETA; I am referring to the article "A Competition of Ideas Is Needed," the collection of articles with the overall title "On a Difficult Search" published on 24 and 26 August and 21 December 1979, and others.

Jointly with USSR ministries and departments and councils of ministers of union republics and with the help of leading institutes USSR Gosstroy has prepared recommendations on solving the entire set of problems in improving cost estimation and project planning. They call for a reduction of the number of stages and the amounts of work and a streamlined process for clearance of documentation, which will make it possible to speed up its delivery considerably. This procedure for project planning has already justified itself in practice.

The intention is for project construction cost to be determined so as to take into account a forecast estimate of changes taking place in current and future price formation, along with performance of tasks to improve the social welfare and consumer services of the workers, to speed up application of scientific and technical development, nationwide programs for environmental protection, and economy.

According to data of USSR Central Statistical Administration, as of the end of 1978 the country had 1,750 project planning and surveying organizations, whose volume of operations is estimated at 2.7 billion rubles. Over the last 10 years this volume has nearly doubled, and the number of project planners has increased from 589,000 to 811,000, or 38 percent, and the output per person has increased 47 percent. These figures show that more attention should be paid in institutes to raising labor productivity. Its growth can be achieved primarily by improving technology, through extensive introduction of new methods and procedures such as two-dimensional and three-dimensional models, microfilming and electrocopying of drawings, and also the use of new office machines, standard drafting elements, and standard fabrications, parts and assemblies. The computer has a special role to play in solving this problem. Only if all these measures are carried out, and above all if electronic equipment and automatic systems are introduced very rapidly, will it be possible in the near future to achieve the necessary 60-80-percent growth of output. This will make it possible to stabilize the number of project planning and surveying organizations. These tasks can be coped with effectively provided ministries and departments responsible for production of the relevant equipment, materials, computer and office equipment manufacture sufficient amounts of these products.

Much needs to be done to improve the system for standardization [interchangeability and adoption of a standard set of elements] of space-layout and structural design so as to further increase the industrialization of construction, to reduce the labor intensiveness of operations and the materials and metal intensiveness of buildings and structures, and to improve the architectural, esthetic and performance characteristics of projects. The proposals call for more extensive use of standard documentation, which is to be worked out on the basis of the advances of science and technology and is to meet the best examples of Soviet and foreign construction. Here the principal direction is to develop standard designs of individual construction-technology and construction blocs, sections and assemblies, and production lines. This is an improved way of speeding up the practical application of scientific and technical advances.

There is no need to belabor the point that the effort to improve project planning and cost estimation must be systematic and purposive and must be based on a thorough analysis and a summary of the experience acquired and must take into account the forecast development of science and technology. This means that we need a scientific approach in the improvement of methodology, management, organization and automation of project planning. That is why it would be wise to set up a specialized scientific research institute in the system of USSR Gosstroy.

The transition to 5-year planning offers important potential for improving the entire field of project planning in the country. This reorganization to be carried out during the drafting of the program for the new, 11th, 5-year period, necessitates a high level of organization and creative efforts by collectives of institutes in their endeavor to achieve high efficiency and quality of performance.

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CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

MINISTRY'S ATTACHMENT TO THE 'GROSS' CHARGED

Moscow STROITEL'NAYA GAZETA in Russian 9 Jan 80 p 2

[Article by V. Danilov, deputy manager of Trust No 4 of USSR Ministry of Construction, Novocheboksarsk, Chuvashskaya ASSR: "Choosing a Strategy To Meet the Time"]

[Text] At the beginning of last October I had an opportunity to visit Belorussia as part of a delegation of the Chuvashskaya CPSU Obkom and to familiarize myself with the activity of construction organizations under the conditions of the economic experiment. Of course, our delegation did not make the trip out of mere curiosity. Because of the well-known decree of the party and government all construction organizations must begin the transition to the new assessment of their performance--on the basis of commodity construction output--as they become ready and complete this transition in 1981. Subdivisions of the Chuvash regional construction administration are to begin this transition in the very first days of this year.

I remember that in explaining things to us during the visits to projects A. Borshch, Belorussian first deputy minister of industrial construction and at the same time chief of the combine Minskstroy, repeatedly said: "New heights cannot be scaled in construction economics by a mere assault. Our knowledge must be improved. From the specialist in the line organization to the senior manager--everyone must have a clear idea of how to do everything that is constructive and contained in the new system of economic activity."

As a matter of fact in the capital of Belorussia we saw convincing evidence that construction has been organized in an economically sophisticated way. Having achieved a 6-percent annual growth in the volume of work performed, the combine Minskstroy is operating profitably and has stable profit. The rate of activation of fixed capital considerably exceeds the growth in the volume of construction and installation work. Standard project construction time has decreased 14 percent on the average.

The visit in Minsk left a very gratifying impression. We did not see there any abandoned construction projects. Most impressive was the quality of finishing, which is the indicator that disturbs builders the most.

Having set down the features of the Belorussian experiment in my notebook, I mentally compared them to the principal indicators of our No 4 construction and installation trust in Novocheboksarsk. It is a sad contrast for us! Our wages considerably exceed the growth rate of labor productivity. The profit plan is showing up cracks in every seam. The volume of unfinished production is welling and exceeding normal limits.

The people in Minsk began their experiment in 1976. A year earlier our trust converted to the new procedure for planning and economic incentives by order of the ministry. Everything seemed pretty good at the outset. We also set up economic instruments to prevent the scattering of funds over a multitude of projects and to encourage their faster activation. We stopped awarding bonuses for fulfillment of quarterly plans for the gross volume of work. We paid bonuses as a function of the plan for delivery of the phases of construction. The indicator of delivery of phases was to determine the funds we received from customers and the formation of incentive funds in the trust's subdivisions.

We worked out a good system for management of construction that was close to the Belorussian model. And ... we immediately found ourselves in the center of unresolved contradictions.

On the one hand, following the new system, we were supposed to fulfill the plan for completion of phases and projects; otherwise there would be no wages, no profit and no bonus funds. But on the other hand all the superior bodies were interested as before only in the figures on performance of construction and installation work in terms of gross output and the amount of money assimilated.

That very first year (1975) USSR Ministry of Construction converted to the advanced principles of economic activity only a small portion of its construction organizations and for some reason did not even ask them about the economic results of the new orientation. In my view this was the principal error of the ministry.

The inertia of the previous methods of management, the personal lack of confidence on the part of specialists of the Main Administration for Economic Planning, and possibly also a fear of being fully accountable turned out to be stronger than the demands of the times. Evaluation of the performance of construction organizations was still based on gross output. State reporting was not established in the ministry concerning the plan for the sale of the finished output of construction.

Now imagine the situation of the manager of the trust. How is he to manage? If he directs efforts toward fulfillment of the plan for delivery of phases, then the figures for gross output will inevitably "shrink." The ministry imposes strict penalties for that, all the way to stoppage of funds and removal of the manager. If principal efforts are aimed at fulfillment of the overall plan for construction and installation work, then activation schedules will not be met.

It was this second road that was willy-nilly taken by our No 4 construction trust in Novocheboksarsk. Countless boxes of various construction projects sprang up, these were years of deceptive prosperity. Resources and funds for construction and installation were assimilated in tremendous amounts. Our above-plan profit ran to large figures. Somehow it did not occur to us that our real achievements in the future, when the time would come to complete the projects already begun, were going off together with those above-plan profits transferred to the budget.

Now that time has come. On the balance sheet of our trust there is a remainder of unfinished construction at 184 projects in the amount of 23.9 million rubles--almost a year's work program for the general contractor. That means 11 workers for each of the unfinished projects.

How does this situation look in a specific case?

Many years ago our trust did the principal reinforced-concrete and fitting work on two salt works. But then for well-known reasons the crew of fitters were transferred to another project. Thus these salt works have been standing there as gloomy monuments to the pursuit of gross output: the metal of the fabrications has rusted, and the pipes of the underground utility mains are silted up. No one wants to even look in that direction now. Where are the additional 10,000-15,000 rubles to be found for putting the project back into shape? This money was not envisaged in cost estimates. In order to avoid overexpending wage funds, it would be more advantageous for our construction workers to build another two salt works and never to finish those already begun.

Under the conditions of the Belorussian experiment, when construction time is so lengthy, the bank would be collecting high interest on credit. But it is not just a question of interest rates. At the construction sites in Minsk we did not see a division of work items into profitable and unprofitable. Everything was directed toward achieving the principal target in terms of commodity construction output.

I am convinced that until we get rid of the ballast--"unfinished construction," until we reduce the entire number of projects under construction at the same time to reasonable limits, we will be unable to take advantage of the Belorussian experience for turning attention to the end result, as has been set forth in the recent decree of the party and government and in the conclusions of the November (1979) Plenum of the CPSU Central Committee.

When we definitively drew up the production plan of the trust for the present year, we had to officially close down approximately half of our construction sites after completing mothballing work on them and to bring projects near completion to the point of delivery very rapidly. I hope we will have the support of our ministry in this.

But at present we are carrying out the first precept we heard in Minsk: learn the new methods of economic activity. As of 1 October we organized three parallel training programs for the management personnel of the trust, its subdivisions and its line organizations.

If from the trust to the ministry we are all aware that the new economic orientation is to be taken seriously, gross output, which we have removed from reporting, will no longer be able to go around by the back door and again take a place in the front row.

7045
CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

JOINT RESEARCH EFFORTS BEAR FRUIT

Moscow STROITEL'NAYA GAZETA in Russian 16 Jan 80 p 2

[Article by G. Usov, deputy chief of the Main Administration for Construction in Moskovskaya Oblast: "Lines of Exploration"]

[Text] Today we publish the results of the main administrations participating in the competition for 1979. The ranking is still the same as it was on the basis of the results for the first 3 quarters. Unfortunately, Glavkiyevgorstroy and Glavmosoblstroy were unable to make up in the fourth quarter the lag in the activation of housing.

	Glavmosstroy	Glavleningradstroy	Glavkiyevgorstroy	Glavmosoblstroy
Fulfillment of the plan for construction and installation work (%)	101.4	100.2	89.9	82.0
Activation of housing, floor area (%)	101.2	101.0	86.2	69.0

In the current 5-year period more than 40 institutes have been collaborating with Glavmosoblstroy. They include the Moscow Construction Engineering Institute imeni V. V. Kuybyshev, the Central Scientific Research Institute of Industrial Structures, the Central Scientific Research Institute of Structural Fabrications imeni Kucherenko, the Central Scientific Research Institute of Experimental Planning of Housing Projects, and the Central Scientific Research and Experimental Project Planning Institute for the Organization and Mechanization of Construction and Technical Assistance to Construction. Every year about 800,000 rubles are appropriated to apply new developments.

Last year prizes of the USSR Council of Ministers were awarded for the design and construction of sewage treatment plants with complete biological purification for rural settlements to a group of specialists of PMK [traveling mechanized construction crew]-68 of Mosoblsel'stroymontazh [Moskovskaya Oblast Construction and Installation Trust], Mosgiproniisel'stroy [Moscow State Project Planning and Scientific Research Institute for Rural

Construction] and other institutions. In the 3 years of its existence the PMK has put into service 134 treatment plants to handle between 25 and 1,200 cubic meters today for settlements ranging from 50 to 6,000 inhabitants, respectively. For the sake of comparison: in the 8 years preceding creation of the PMK, 46 treatment installations were built.

Designs have been created in Glavmosoblstroy of fully prefabricated packages of boiler room equipment with DKVR and TVG boilers, which makes it possible to do more assembly off-site. The reduction of labor expenditures per boiler is 28 man-days.

In the present 5-year period five of the main administration's scientific and technical developments have been awarded prizes of the USSR Council of Ministers. Recently a job lasting many years was completed--a system of specialized motor transport equipment was created for hauling prefabricated reinforced-concrete structural elements.

On the basis of the standardization work done to establish standard components and assemblies specialists of Glavmosoblstroy, construction ministries, the Central Scientific Research and Experimental Project Planning Institute for the Organization and Mechanization of Construction and Technical Assistance to Construction, the State Motor Vehicle Inspectorate, and other organizations have recommended for use only 16 of the existing models and 3 modifications of specialized machines which are able to carry more than 10,000 different types and sizes of reinforced-concrete products. According to calculations the annual economic benefit from adoption of the system will amount to about 30 million rubles. An interdepartmental commission associated with USSR Gosstroy has recommended the machines for series production.

I have illustrated only three lines in the search for effective technological solutions on which work has been done by Glavmosoblstroy. The comprehensive research and development plan has defined the 10 most important lines of joint activity of the 4 main administrations.

7045
CSO: 1821

CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

REVIEW OF PRACTICAL USE OF NET OUTPUT INDICATOR

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 11, 1979 pp 36-41

[Article by A. Deminov, first deputy chairman of USSR Gosstroy; F. Potapenko, chief of the economic planning administration of Glavmospromstroymaterialy [Main Administration of the Building Materials and Structural Parts Industry of the Moscow City Executive Committee]; and V. Kovalenko, deputy director of the design and technology office of Mosorgstroymaterialy [expansion unknown]]

[Text] The decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improvement of Planning and Increasing the Impact of Economic Policy Instruments on Raising Production Efficiency and the Quality of Performance" called for the net (normative) output indicator to be put into practice in socialist economic activity. The transition to this indicator presupposes the creation of certain conditions. The preparation of these conditions in the building materials industry began with the experiment that has been conducted since the beginning of 1976.

Moscow's building materials industry, which has been developing predominantly by virtue of intensive factors, achieved important results in raising production efficiency between 1971 and 1978. The volume of industrial output rose 58 percent; labor productivity rose 53 percent, and 92 percent of the entire growth of output resulted from that improvement. Profit and profitability improved considerably. The industry built and put into service 58 fully mechanized shops and sections and more than 200 mechanized flow lines and automatic production lines. Fixed productive capital rose 408.1 million to 700 million rubles.

An extensive program to renew the products list is being carried out at enterprises of Glavmospromstroymaterialy. In that period 2,960 new products have been put into production. Large-size facing tiles, parquet panels, new types of linoleum, built-in furniture, wood-aluminum blocks and many other products and materials have been put into large-scale production.

Considerable work has been done to raise the technical level and quality of the building materials and fabrications produced. Consequently, 98 percent of the products produced have been classified in the first- and superior-quality categories, and 117 products have been awarded the Quality Emblem.

Application of the advances of science and technology and the performance of measures related to the specialization and concentration of production and to raising the level of its organization have made it possible year after year to reduce production costs and revise wholesale prices accordingly. Between 1971 and 1978 prices of the main administration's products were reduced 74.2 million rubles, and at the present time they are the lowest prices in the country for most types of building materials.

But in spite of the high rates of development and the efficiency indicators attained, the technical potential for production was until recently underutilized. To a considerable extent this was because of shortcomings in the system of planning and evaluation of the activity both of the main administration and also of its enterprises.

It was proposed that the normative net output indicator be used to eliminate shortcomings in the prefabricated reinforced-concrete industry on the basis of an economic experiment to improve planning. We should note that this experiment has been under way at enterprises of other ministries (mostly in machinebuilding). The aim of the experiment is to discover the possibilities of planning the volume of output in indicators that eliminate the use of past labor in assessing enterprise performance and which thereby enhance the motivation of enterprises to raise production efficiency on the basis of their own contribution to the manufacture of progressive fabrications with lower materials intensiveness.

The experiment was conducted along two lines:

i. discovery of the feasibility of applying the normative net output indicator (instead of gross output) to plan and evaluate the overall volume of production in value terms and labor productivity computed on the basis of net normative output;

ii. to verify the possibility of planning and evaluating the volume of production of prefabricated reinforced concrete in adjusted cubic meters of physical output (instead of actual cubic meters).

The Administration of the Prefabricated Reinforced-Concrete Industry was chosen as the subject of the experiment; it consists of 24 enterprises with a total volume of production of 4.7 million cubic meters of prefabricated reinforced concrete and a work force of about 20,000 persons. This selection was made not only because it is a leader in the main administration, but also because the shortcomings of the present system of planning have been vividly manifested in the prefabricated reinforced-concrete industry as in no other industry. Moreover, this industry is closely bound up with construction and has a direct impact on project erection time, on the quality of construction, on labor productivity and on other extremely important technical and economic indicators of construction work. Prefabricated reinforced-concrete enterprises are not only manufacturing fabrications, but they are also responsible for aggregate utility supply of projects in accordance with assembly schedules. Thus traditional cooperative relations are being supplemented by closer technological ties.

Prefabricated reinforced-concrete enterprises manufacture more than 8,500 individual items. It is typical of these enterprises that their product mix and cost structure change rapidly and products are renewed at a fast pace (the entire products list changes every 5 to 8 years).

It is advisable in the prefabricated reinforced-concrete industry to use a system of planning and assessment of enterprise performance which would encourage the following:

i. strict fulfillment and proportional overfulfillment of plans stated in terms of specific products for all items, which would ensure that all items are available for production of the finished products and would accordingly guarantee regular delivery of fabrications and parts to construction projects;

ii. regular renewal of the products list so as to take into account the organization of production of more efficient fabrications with lower mass, improved strength characteristics and high level of shop fabrications;

iii. performance of these tasks accompanied by economical utilization of materials, labor and financial resources.

Preparations were made to conduct the economic experiment in the 1973-1975 period and they were carried out on an interrelated basis. Principal attention in the preparatory period was paid to working out the methodology of the experiment and also to drafting net output norms and coefficients reflecting the complexity of manufacture of reinforced-concrete products. At the same time a broad program to prepare and train personnel was carried out.

The following were adopted in 1975:

i. methodological guidelines for conversion of prefabricated reinforced-concrete plants to planning and assessment of performance on the basis of the net output indicator;

ii. net output norms for all types of industrial products (1,071 items) manufactured by these enterprises. The norms were compiled by the method of eliminating material costs from the wholesale price as of 1 January 1975 for each product (since 1 January 1978 the norms have been obtained by averaging the profit per ruble of wages);

iii. methodological guidelines for planning and recording the production of prefabricated reinforced concrete in adjusted cubic meters;

iv. the coefficients of complexity of manufacture of reinforced-concrete products (227 items).

Plans for the volume of production of normative net output and prefabricated reinforced-concrete fabrications in adjusted cubic meters were prepared and approved for 1976 on the basis of these normative documents both for the administration as a whole and for each enterprise. The targets of the volume of production of normative net output in adjusted cubic meters were broken down to the shops manufacturing the final product. This indicator was included among the principal indicators used in awarding bonuses to supervisory and engineering and technical personnel of the shops and the plant administration.

Additions have been made to the method of compiling the technical, industrial and financial plan so as to take into account the need to link net output indicators with the other sections of the plan. Provision was also made for the necessary recordkeeping and reporting of enterprises based on the new indicators. The indicators determined on the basis of gross output were retained as analytical indicators.

One of the typical features of the preparatory period was the extensive participation of enterprise personnel in drafting these documents.

During the period of preparation and conduct of the experiment 164 teams and shifts were converted to cost accounting at the enterprises of the prefabricated reinforced-concrete industry, and in 2 years they saved raw materials and supplies worth 329,000 rubles. A new price list of wholesale prices for catalog products was drafted and approved, individual thrift accounts were put into practice, social development plans of enterprise collectives were prepared for the 1976-1980 period, and the dates for drafting the technical, industrial and financial plans were moved up. Closer attention was paid to the economics of production and economic techniques by engineering and technical personnel, employees and workers. All this beneficially affected the rise of production efficiency and the quality of performance.

In view of the gratifying results of the experiment, beginning in 1978 the main administration evaluated the activity of other industries on the basis of net normative output: woodworking, ceramics, rock products and the industry of synthetic and insulating materials. Thus the activity of all 77 associations and enterprises of the main administration is planned and evaluated on the basis of net normative output; they have a total work force of 70,000 and their commodity output is worth more than 900 million rubles per year.

Of greatest interest are the results of work done under the new conditions by enterprises of the prefabricated reinforced-concrete industry. They have successfully fulfilled plan assignments and exceeded the planned growth rates of the principal technical-and-economic indicators in the 1976-1978 period. The entire growth of output was achieved by raising labor productivity, which made it possible to make 2,180 workers available for other work.

Fulfillment of the plan for the products list was improved. The number of items on the list for which the plan was fulfilled increased 30 percent between 1976 and 1978. Moreover, the level of plan fulfillment for the most important items increased from 66 to 100 percent. The relative share of items fulfilled increased from 67 to 95 percent, and the level of plan fulfillment in terms of the products list increased from 97.5 to 99.5 percent for the industry as a whole.

The output plan was entirely fulfilled with respect to the given products list by 21 of the 24 enterprises. Times required for aggregate utility supply of apartment houses were shortened: by 11 percent for the 12-story catalog series, by 18.5 percent for the 14-story houses in Series I-209A, and 22 percent for schools.

The economic experiment helped in putting progressive fabrications into production. In the 1976-1978 period enterprises manufacturing prefabricated reinforced-concrete put 2,100 new products into large-scale production (an average of 700 products per year), and as a rule this meant reduced consumption of concrete and metal; this is compared to the 352 products put into production in 1975. The output of products bearing the Quality Emblem increased fourfold.

Organization of the output of fabrications representing lower materials intensiveness, adoption of progressive manufacturing processes, improvement of production, and closer attention to economy have made it possible for prefabricated reinforced-concrete enterprises to save 72,000 tons of cement and 11,000 tons of metal in 3 years. The materials intensiveness of products manufactured in the 1976-1978 period dropped 3.7 percent from the 1975 level, which represents a saving of 5.1 million rubles. The downward tendency of materials intensiveness of the products produced is also confirmed by data on the average product volume. Whereas in 1975 it was 0.638 cubic meter, in 1978 it dropped to 0.6 cubic meter, or 6 percent.

As for putting a new list of products into production with higher labor intensiveness, normative labor intensiveness of the entire volume of production rose 3.3 percent between 1975 and 1978. Thus the increase in net output is largely explained by the stronger impact of this factor.

At the main administration's enterprises the reduction of the labor intensiveness of products previously manufactured continued during the period that the economic experiment was in operation. Whereas the plan for net output was overfulfilled for the 3 years, the savings on the wage fund was 322,000 rubles.

Under the conditions of the experiment the net output indicator was used to plan and evaluate the volume of production in value terms and labor productivity, to monitor expenditure of the wage fund, and to make additional transfers to incentive funds for overfulfillment of the plan.

The advantages of the net output indicator were manifested most fully in connection with the structural shifts in the composition of output.

Under the conditions of the experiment there was much less difference in profitability from product to product. For various products manufactured by our enterprises the ratio of wholesale prices to wages ranges from 30.2 to 2.8, which is a spread of 10.4:1, but when the net output norm is compared to wages, the range is from 5.1 to 1, a spread of 5:1.

Many economists note in pointing to the shortcomings of the normative net output indicator that it is sharply influenced by the differing rates of profitability of products. We can agree with this, though in the prefabricated reinforced-concrete industry this factor was not strongly manifested because the overall level of profitability is low (10.9 percent is the level of profitability computed with respect to full production cost, while it is 26.3 percent when compared to normative net output). Thus it is advisable to base profit not on production cost, which includes material costs, but on the full wage. Implementation of this proposal would make it possible to make normative net output more effective as an indicator. It is also very important that we would then have a system of prices that would reflect more properly the social cost of production of the various fabrications and would encourage the manufacture of progressive products.

This method has been followed in the experimental price list of reinforced-concrete products manufactured by the Design Technology Office of Mosorgstroymaterialy, which was approved on 16 April 1979 by the USSR State Price Committee. For the first time the profit included in the prices and net output norms was defined with respect to wages plus depreciation instead of with respect to the full production cost of the product. In addition to wholesale prices the price list contains the average net output norms of the industry. We thus have a unified methodological basis for arriving at most of the economic indicators of enterprise performance, including the traditional indicators of sales, profit and profitability.

Using net (normative) output as an indicator tightens requirements for stability and fulfillment of planning assignments with respect to the list of specific products. The experience with the prefabricated reinforced-concrete industry has confirmed for this main administration that normative net output is an indicator that is better suited to objective measurement of labor productivity than the other value indicators in use at the present time. The dynamic behavior of normative net output corresponds to the dynamics of labor intensiveness and evens out to a great extent fluctuations in output per worker resulting from the differing materials intensiveness of products.

Normative net output is a more suitable indicator for monitoring expenditure of funds for wages. The funds released to enterprises according to fulfillment of the plan for net output correspond to their real need for funds to remunerate labor. Normative net output is also an indicator that makes it possible to measure the output-capital ratio more correctly.

The method based on adjusted physical measurement was checked during the experiment in order to study the possibilities of improving the planning and evaluation of the volume of production and labor productivity in physical terms. It has been used extensively in the tractor industry, the motor vehicle industry and the electrical equipment industry. But the adjusted physical unit of measurement used as the basis there often reflects technical parameters (for example, tractor power converted to 15-HP tractors) which do not coincide with the dynamic behavior of labor expenditures. For instance, the power of various tractor models does not coincide to their labor intensiveness. The adjusted physical units built on such a basis do not yield an objective reflection of changes in the level and dynamics of labor productivity.

In the prefabricated reinforced-concrete industry labor expenditures were taken as the basis for measuring adjusted physical units. This makes it possible to achieve the necessary unity between changes in the volume of production and labor productivity in the adjusted physical measurement and dynamics of labor expenditures.

Coefficients of the complexity of manufacture of products, which take into account the labor intensiveness of their production, are used in the main administration. The complexity of manufacture of a product whose labor intensiveness is 5.5 man-hours per cubic meter was taken as the unit of complexity.

During the conduct of the experiment the principal indicator planned and recorded concerning the volume of production of prefabricated reinforced concrete was output in adjusted cubic meters. The indicator of the volume of production in physical units was retained as an analytical indicator in order to balance the volume of production of prefabricated reinforced concrete in the industry as a whole, for the sake of comparison with figures given in adjusted cubic meters, and also to determine the need for physical resources.

Fears that enterprises would strive to manufacture products with higher coefficients of complexity to the detriment of other fabrications were not borne out. The average coefficient of complexity for the prefabricated reinforced concrete industry as a whole averaged as follows over the 3 years: 1.25 according to the plan and 1.26 according to actual results. Deviations from enterprise to enterprise were also negligible. For example, according to 1978 figures the planned coefficient at the Beskudnikovskiy Prefabricated Reinforced-Concrete Combine was 1.87, while the actual coefficient was 1.87; at the No 2 Reinforced-Concrete Fabrications Combine the figures were 1.78 and 1.78, respectively; at the No 8 ZhBI [Reinforced-Concrete Products] Plant the figures were 0.76 and 0.78, respectively; at the No 22 ZhBI Plant they were 1.34 and 1.41, respectively; and so on.

On the whole we can draw the following conclusions from the results of applying the indicator computed in adjusted cubic meters. This indicator makes it possible to objectively compare the work of enterprises manufacturing different products; it enhances motivation to fulfill the plan for manufacturing products for the entire assigned list; and it guarantees more correct determination of labor productivity in physical terms of measurement.

Calculations indicate that the growth rates of labor productivity computed in adjusted cubic meters coincide by and large with the dynamic behavior of the labor intensiveness of product production. If the growth rates of labor productivity are determined on the basis of value indicators, they prove to be higher. For instance, labor productivity computed in adjusted cubic meters rose 11.9 percent between 1975 and 1978 at the No 3 ZhBI Plant; the increase at the No 8 ZhBI was 3.5 percent; and at the No 18 ZhBI Plant it was 16.6 percent. When average output per worker was computed in value terms, productivity increased 13 percent, 3.6 percent and 17.6 percent, respectively.

For the main administration as a whole labor productivity in adjusted physical terms rose 8.4 percent, while in value terms it rose 11.7 percent. The reason for the difference is that the value method reflects, first, the differing profitability of manufacturing particular products, which to a considerable extent results from their differing materials intensiveness, and second, different methods of computing normative net output and coefficients of complexity of product manufacture. Whereas in the former case the products were defined as individual (based on the costs of each enterprise separately), in the latter case they were average industry costs.

In our opinion the methods of measuring labor productivity we are discussing--the value method and the adjusted physical method--supplement one another and it would be advisable to distinguish between them as a function of the task that is to be performed. In particular, the adjusted physical indicators (adjusted cubic meters) and the value indicators can be used to study the level and dynamics of labor productivity in shops, enterprises and industries producing only prefabricated reinforced concrete.

The experiment at prefabricated reinforced-concrete enterprises of Glavmospromstroymaterialy showed that use of normative net output as an indicator revealed new possibilities for planning. The decree of the CPSU Central Committee and the USSR Council of Ministers dated 12 July 1979 envisaged a set of measures which make it possible to utilize these possibilities more fully, and this will become the main line of activity of all entities in the economy in coming years.

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7045
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

STATISTICAL SERVICE'S CONTRIBUTION TO IMPROVED CAPITAL CONSTRUCTION

Moscow VESTNIK STATISTIKI in Russian No 11, 1979 pp 20-29

[Article by A. Belyakov]

[Text] The party and government are constantly paying a great deal of attention to capital construction; a tremendous construction program has been undertaken in the country. It is sufficient to say that in the 3.5 years of the current 5-year period 425 billion rubles have been invested in the economy; fixed assets put into service amount to nearly 370 billion rubles, which is 31 percent more than in the corresponding period of the Ninth Five-Year Plan.

About 800 large industrial enterprises have been put into operation, including the following: the Kurskaya, Chernobyl'skaya and Armyanskaya nuclear power stations, the Sayano-Shushenskaya GES, the Lisichansk and Pavlodar petroleum refineries, the Kama Motor Vehicle Plant, the Novospasskiy and Navoi cement plants, a wool-spinning mill in Krivoy Rog, and new earthenware and porcelain plants, garment factories, and large packing houses in the cities: Lipetsk, Zhitomir, Volgodonsk and many others.

New trunk petroleum and gas pipelines extending a total of more than 26,000 km have been laid. Construction has advanced successfully on the Baykal-Amur Trunk Rail Line [BAM]. The funds of the state and kolkhozes have financed the irrigation of more than 2.7 million hectares and the draining of 2.5 million hectares which have gone into production.

Housing construction has been carried on on a sizable scale. Housing has been built with total floor space of 355.1 million square meters, or about 7 million well-equipped dwelling units.

At the same time the serious shortcomings in the construction sector mentioned at the November (1978) Plenum of the CPSU Central Committee have not yet been corrected. The principal ones are the continuing growth of unfinished construction and the scattering of funds over a large number of construction sites and projects, so that construction time is protracted and the assignments of the 5-year plan for activation of a number of the most important production capacities and facilities for nonproductive purposes are not being fulfilled, and the efficiency of capital investments is not high enough.

The decree of the CPSU Central Committee and USSR Council of Ministers entitled "On Improving Planning and Increasing the Impact of Economic Instruments on Raising Production Efficiency and the Quality of Performance" devotes a great deal of attention to the planning of capital construction. It emphasizes the growing role of 5-year planning, which has paramount importance to improvement of management of the economy and especially to proper organization of capital construction. The 5-year plan is to be the principal planning document for all construction sectors; the attention of planning and economic agencies is turned toward making capital construction plans more stable and consistent with the other sections of the state plan.

This gives greater importance to the statistical work of monitoring progress in the fulfillment of 5-year plans for capital investments and activation of capacities in the production and nonproductive spheres. It is important now that the agencies of the state statistical service provide constant observation over the sectoral and regional distribution of capital investments envisaged in the 5-year plan, inform policy-making and planning authorities about possible departures from planned proportions in the development of individual sectors and regions resulting from breaches of planning discipline in capital construction and from nonfulfillment of assignments for activation of fixed assets and capacities. This purpose will be better served if the efforts of statisticians in the fields of capital construction and the industrial sector, as well as other sectors, are united.

In view of the way planning practice has developed, current capital construction plans differ considerably from 5-year plans, mainly because the latter reflect transfers of funds which ministries and departments make to union republics on the basis of shared participation in construction of nonproductive facilities and in that the ministries serve as clients for certain production sectors. A problem that is by no means simple has to be solved together with planning agencies: to achieve comparability of data in reporting on fulfillment of 5-year and current construction plans for various ministries and departments, councils of ministers of union republics and enterprises.

Even in the 1980 plan provision is to be made to speed up the activation of capacities and projects at sites where construction is already under way and the volume of unfinished construction and the number of new construction starts are to be sharply reduced.

Still greater importance is being assumed, then, by the regular drafting and analysis of the data of annual reports of builders reflecting changes in the amount of unfinished construction and its composition by enterprises, ministries and departments, and also the reporting on Form No 8-ks [capital construction], which reflects the distribution of capital investments in plans by construction sites and projects, the portion of the estimated cost of the construction that has been assimilated, and the concentration of funds at sites and projects begun previously and especially at those scheduled for completion.

More thorough work on these matters should be helped by the introduction of electronics into the processing of reports. A set of routines is now being prepared for electronic processing of the annual reports of builders, and a set of analytical routines is also being prepared in which provision is made for systematic processing of data concerning capital construction and data is furnished that comprehensively reflects the efficiency of utilization of capital investments in the light of the tasks which have been set.

Stating the problem in the sector of capital construction at the 25th CPSU Congress, L. I. Brezhnev said that there must be a change of approach to the planning and use of capital investments and that existing production and new construction must be planned as a unified whole. Capital investments must be appropriated for the planned growth of output rather than for new projects. Physical and financial resources have to be committed first to the retooling and reconstruction of existing enterprises--where production capacities can be expanded without new construction or at lower specific capital cost. On the basis of this fundamentally new principle governing the planning of capital construction the decree referred to above stated that drafts of 5-year plans would envisage capital investments for development of the branches of material production for the planned growth of the volume of output and services. In pursuit of this goal summary plans are to be compiled for reconstruction and retooling of existing enterprises, and priority is also to be given to the allocation of physical resources and equipment to carry out those projects. The funds for construction of new enterprises and expansion of existing ones will be allocated if the needs of the economy for the given product cannot be met by existing enterprises even if they undergo reconstruction and retooling. On that basis USSR Gosplan is to set the limit on capital investments, construction and installation work and contract work covered by physical resources for the 5-year period. Within that limit ministries and departments and councils of ministers of union republics are to distribute capital investments among construction projects, guided by planning balances and computations that envisage maximum utilization of existing production capacities and a saving on capital cost.

In that context the statistical service must be energetic in helping planning and economic agencies to take into account more fully the opportunities and potential at enterprises and ministries when amounts of capital investments are being determined in order to provide the necessary growth of production. Above all there must be an improvement in information on fulfillment of assignments set enterprises and ministries for the growth of capacities by virtue of retooling and reconstruction, and existing opportunities for increasing the relative share of capital investments in those directions must be indicated. Report data show that whereas for the 3 years of the 5-year period taken together the relative share of capital investments for retooling and reconstruction in the total volume of capital investments for industrial construction rose somewhat (from 13.4 percent in 1975 to 18.3 percent in 1978), there were ministries and departments where it did not rise.

For purposes of preparing this information for fuller analysis of the potential that exists it is worthwhile to recommend that statistical data on capital construction be supplemented by statistical materials on the industrial sector and technical progress concerning the level of utilization of existing production capacities and performance of measures to reequip enterprises and industries, as well as on the benefit resulting therefrom.

The figures in the reports of builders (Form No 2-ks) at present make it possible to systematically and comprehensively analyze changes in the proportions of capital investments by technological purpose. According to the data of these reports the relative share of outlays for equipment in the total volume of capital investments for industrial construction increased from 42 percent in 1975 to 45 percent in 1978.

At the same time the opportunities that exist for raising the relative share of the active part of fixed assets activated and for reduction of outlays for construction and installation work are still not being fully utilized by many ministries and departments and project planning organizations. The reference here is above all to expansion of retooling and reconstruction of enterprises, to increasing the share of equipment that goes to replace outdated equipment in existing shops, and also to using project plans that call for more economical solutions in construction and layout.

It is of paramount importance to improvement of affairs in the construction sector that new and more progressive planning indicators and norms be introduced so as to encourage attainment of a high level of end results by construction industry.

The system of planning and economic incentives in effect at the present time in the construction industry is not sufficiently orienting construction organizations toward attainment of high end results of their work, since that planning and the settlement of accounts with customers are not based on completed enterprises and projects ready for use, but on intermediate stages of work, especially in industrial construction. There is essentially no connection between the indicators of economic performance of construction organizations and the indicators of activation of projects. The principal value indicator is the total (gross) volume of operations. The end product of construction, however, is the fixed capital that is activated.

The decree has anticipated that beginning with the 11th Five-Year Plan 5-year and annual plans will assign to construction ministries and departments, and also to subordinate organizations, not only a target for activation of capacities and projects in physical terms, but also a target for the volume of commodity construction output. This indicator reflects in value terms construction and installation work entirely completed on finished enterprises or phases, independent complexes and facilities which have been put into operation.

Thus the indicator of the volume of operations of construction and installation work will be organically related to the principal value indicator of capital construction--fixed capital activated. The criterion for assessment of plan fulfillment with respect to this indicator, just as is the case for activation of fixed capital, will be acceptance of enterprises and projects for operation by state commissions and subsequent regular approval of acceptance certificates.

Some experience has already been gained in planning and evaluating the activity of construction and installation organizations on the basis of indicators of commodity construction output. In recent years an economic experiment has been conducted in the Belorussian Ministry of Industrial Construction, the Lithuanian Ministry of Construction and a number of other organizations where a new system of planning indicators and economic instruments has been undergoing development.

An analysis of data on the performance of these organizations indicates the superiority of this system: the proportions of unfinished construction have decreased and project construction time has become shorter; and the indicators of labor productivity and profit have improved. Since outlays for unfinished construction are covered with bank credit, the financial condition of these organizations has improved, and delinquent indebtedness has dropped. There has been an increase in the sum total of material awards paid for scheduled completion, and workers have become more interested in the results of their work.

The experiment which has been conducted has shown, however, that the system of planning and economic incentives introduced can operate effectively only if the system embraces all links in the chain of the construction process and also customers and suppliers of equipment and materials. That is why the decree stated that ministries and departments figuring as clients are to assign targets for the volume of commodity construction output for subordinate enterprises and organizations in the role of builders.

The new indicators are also to be included in statistical reporting. The idea is to include in state reporting of contractors (Form No 1-ks) the indicator of commodity construction output as the principal indicator and the total (gross) volume of operations will be retained in the report only for purposes of reference (it is necessary for determining the need for material and technical resources, the wage fund, working capital and credit). This indicator should obviously be retained for determination of the growth rates of the volume of operations as well. State statistical agencies have a great deal to do together with ministries and departments, main administrations, regional administrations and trusts to achieve reliability of the new indicator and to link and fit it into the planning and reporting of contractors and builders in order to achieve effectiveness of the new indicator and of evaluating the performance of construction organizations in the new way.

Attention is called to the need to create conditions for drafting strenuous and at the same time sound commodity output plans. Ministries, departments and project planning organizations should prepare the set of norms and standards and should determine and identify in itemized lists the volume of construction and installation work for all projects to be put into service, and this should be done not only for the planning year, but also for the 5-year period. USSR Gosplan should prepare the relevant principles concerning methods. The quality and effectiveness of the new indicator will depend on the success of this preparatory work. Here it is important to overcome a certain psychological barrier--the orientation toward gross output which built up over the years. For that purpose the indicator of plan fulfillment for the volume of commodity output both as a whole and also for individual clients is to be emphasized along with the indicator of activation of capacities and projects in statistical and economic information on fulfillment of plans by construction and installation organizations, ministries and departments sent to policy-making and economic agencies.

Successful fulfillment of the plan of scheduled work will in large part be determined by the uniform distribution of the volume of commodity output in the plan. This in turn is related to the planned dates of project activation. Uniformity in the distribution of the volume of work will make it possible to improve the organization of production and of work in the construction industry and to reduce project construction time and the proportion of unfinished construction. It will obviously be necessary to provide statistical observation of the variation of the indicators not only by clients but also by construction organizations.

The effectiveness of planning and of the impact which economic instruments have on improving the end results of the activity of construction organizations--that is now one of the principal topics of economic analysis.

In the 11th Five-Year Plan the transition is to be made to planning labor productivity in the construction industry on the basis of net output (normative) or some other indicator that reflects more accurately changes in expenditures of labor so as to eliminate the adverse effect of the total (gross) volume of operation on the indicator of the growth of labor productivity, which will make it possible to evaluate more objectively the results of the work of each construction collective. We should note that the influence of materials intensiveness on value indicators in the construction industry is very high. For instance, the relative share of material costs in the production cost of construction and installation work is all of 56 percent. Moreover, it varies greatly from organization to organization and depends on the composition (set) of work items and on the various types of materials and fabrications used.

The new indicator will be introduced gradually, as the set of estimate norms is prepared and as the estimated cost of work items on the basis of net output is determined.

At the same time, not only do the new indicators have to be supplemented and the statistics of capital construction substantially improved, but the amount of present reporting also has to be diminished by those topics and indicators which have now lost their relevance.

The performance of the measures envisaged in the decree will make it possible to increase the efficiency of capital investments, the return on every ruble of funds invested. The principal ways of increasing efficiency are to reduce construction costs and construction time, to increase the relative share of outlays for reconstruction and retooling of existing enterprises, to improve utilization of newly activated capacities and to raise the level of profitability of enterprises. Extensive use of the advances of scientific and technical progress in project planning and construction is an indispensable condition for raising the efficiency of capital investments.

The problem of improving the methodology of statistical study of actual economic efficiency of capital investments and of introducing into the practical work of state statistical agencies a system of indicators making it possible to obtain a scientifically sound quantitative reflection of efficiency confronts the field of statistics on capital construction with particular acuteness. Then it would be possible to analyze more thoroughly and fully the situation that has come about in construction, and this will be a substantial aid to policy-making bodies and planning agencies in making their decisions in the domain of capital investments.

Certain steps have already been taken in this direction. A methodology has been developed for determining actual construction time and for comparing it to the standards in effect, and also for determining specific capital investments. Information is accordingly being collected annually for a broad range of enterprises and projects activated at rated capacity. The organization has been set up for obtaining data on project planning time along with data on construction time, this being an indispensable prerequisite for studying the length of the entire investment cycle. Surveys are being regularly conducted on construction time and value of housing and public works projects.

Work on the methodological problems of constructing indicators pertaining to actual payoff periods and coefficients of the efficiency of capital investments at the level of individual enterprises and related groups of enterprises has been an exceedingly important stage along the way of the further rise in the level of statistical work to study the actual efficiency of capital construction. For a number of years this methodology was the basis for assembling data on efficiency of capital investments for industrial enterprises, but in the current year data of this kind will also be obtained for agricultural enterprises.

A methodology is to be developed for determining the indicators of actual economic efficiency of capital investments at the level of the national economy and also at the level of the union republics, the sectors of the economy and individual industries, as well as ministries and departments. This methodology will make it possible to create an orderly system of hierarchically interconnected indicators that comprehensively reflect the situation as to the actual economic efficiency of capital investments that has come about in the economy.

Because of the increased responsibility of customers and contractors and suppliers of equipment and materials for the timely activation of production capacities and projects, up-to-date information on fulfillment of capital construction plans has a greater role to play. In recent years a number of indicators and new reporting forms have been developed and introduced, making it possible to monitor more closely the course of construction and fulfillment of the plan for activation of fixed assets and capacities, capital investments and also plans of contract work.

Particular attention is paid to information on the construction of projects nearing completion which have great importance to the national economy. A special reporting system has been introduced for such projects on Form No 26-ks (appendix to Forms No 2-ks (periodic) and No 1-ks (periodic)), which builders file jointly with contractors, which enhances their responsibility for the authenticity of the reported data. The processing of these reports by computer has made it possible for the Main Computer Center of the USSR Central Statistical Administration to supply the data even by the fifth of the month following the reporting month.

Information on construction of enterprises and projects using complete sets of imported equipment and also on the basis of compensation deals with firms of other countries and by agreement with CEMA member countries also has great importance.

In order to make all this information more effective statistical agencies must supplement it with a brief description of the reasons for the lag in construction of individual projects, using the reporting figures, which make it possible to study more thoroughly the progress on the most important construction projects and the supply to them of equipment, manpower and structural fabrications, and to conduct periodic surveys of construction projects. We should take into account in this connection that the surveys of reasons for nonfulfillment of plans for activation of capacities indicate serious shortcomings in the supply of manufacturing and power equipment and physical resources to projects near completion. For instance, in 1978 about 20 percent of the projects were not put into service because of a lack of equipment or because equipment deliveries were not complete. That also enhances the role of statistical information on the course of fulfillment of plans for deliveries of equipment and materials to construction as well as the role of retrospective physical balances.

As for statistics on capital construction proper, it obviously is high time to extend to all the most important projects near completion the reporting system now in effect for chemical construction projects on the arrival, installation and activation of equipment (Form No 5-ks chemical industry).

The greater responsibility of enterprises and organizations, ministries and departments for ensuring fulfillment of capital construction plans imparts greater importance to the work done by state statistical agencies in guaranteeing the reliability of reported data. It is very important in this connection to run regular checks on the reporting of builders and contractors concerning activation of production capacities and facilities for housing and cultural and consumer services, as well as the checks of other reported indicators on capital construction, and to increase the level and effectiveness of these checks. At the present time methods manuals are being prepared with a view to improvement of the quality of these checks.

Lists of new construction sites and enterprises which are to undergo reconstruction and expansion will be set forth in the 5-year plan. This will give state statistical agencies the opportunity to improve the organization of reporting on construction progress at the most important construction sites and to provide regular monitoring of fulfillment of specific assignments with respect to activation of capacities and projects.

Experimental tests are now being run on programs for register study of enterprises and construction projects using a unified computer system developed by the Uzbek Central Statistical Administration jointly with the Administration for the Statistics of Capital Construction and scientific research institutes of the USSR Central Statistical Administration. Introduction of a register of construction sites into the practice of processing reports by the computer system of the USSR Central Statistical Administration will guarantee a supply of diverse information on industrial construction projects, including information on assimilation of the estimated cost, the proportion of work done and unfinished construction, construction time, project planning characteristics, and indicators of the actual efficiency of capital investments.

It is becoming especially important to process reports on construction in a regional breakdown and specifically to process reports of contract organizations on their possession and use of production capabilities in developing regions and regions where construction is concentrated.

In the current 5-year plan the lag in development of the construction industry in certain regions of the country is holding back the growth rates of capital investments and is preventing fulfillment of plan assignments for activation of new production capacities.

In 1980 agencies of the USSR Central Statistical Administration intend to take a one-time count of construction and installation trusts and organizations not formed into trusts. This should yield detailed information on the level of development of construction work by republics, krays and oblasts, which will afford planning agencies the possibility of improving the consistency of capital construction plans with the capacities of construction organizations for the 11th Five-Year Plan.

Summary capital construction plans for TPK's [regional industrial center] will be compiled in order to improve regional planning and the location of productive forces. Among the major special-purpose comprehensive programs, whose performance depends in large part on capital construction, the decree names development of the BAM zone. This area adjacent to the trunk rail line now being built will take up approximately one-twentieth of the country's entire area with advanced industry and agriculture. One of the largest industrial projects to be built here is the Southern Yakut TPK.

Supervision over fulfillment of these plans needs to be instituted. Corrections have to be made in the present reporting on construction of TPK's so that it reflects not only progress in fulfillment of the summary plans assigned, but also the punctuality of activation of enterprises and projects which are part of the complex, and in particular raw materials and processing, livestock-raising complexes, as well as transportation, housing and cultural and consumer service facilities necessary to well-rounded development of the region as a whole.

As the decree emphasizes, results can be achieved at a high level only with extensive introduction of the advances of scientific and technical progress and a higher level of machinery per worker. A number of steps are now being taken to speed up full mechanization of construction work; in particular, the production of construction machines, machinery and tools is increasing considerably.

Comprehensive information on the level of mechanization of production and the level of introduction of new technical measures and also the influence of this factor on the growth of labor productivity and reduction of the number of workers doing manual labor is taking on quite considerable importance in this connection.

Proposals are being prepared in the USSR Central Statistical Administration on inclusion in annual reports on the mechanization of operations in construction of indicators reflecting the number of workers employed at mechanized and manual labor and on the benefit obtained from mechanization.

Great importance is also attributed to an economy regime and reduction of losses in production. A sample survey conducted by agencies of the USSR Central Statistical Administration and USSR Gossnab in certain trusts showed that there is considerable overexpenditure of materials related to departure from proper work procedures, spoilage of materials and fabrications, and also because work done poorly must be redone.

At present there is no regular information on this important question. Data worked up on the basis of reports on Form No 2-sn in consolidated indicators on consumption of materials per million rubles of construction and installation work do not essentially reflect the results of the performance of construction organizations in economizing on materials. Statistical reporting form No 20-sn, which was adopted last September, now makes it possible to obtain monthly information on consumption of materials and supplies in construction as compared to production standards. It is important to see that this new reporting system is adopted in all construction organizations and enterprises carrying on construction by the direct labor method and also to ensure the reliability of data on this form.

In analyzing the consumption of material resources it is also advisable to use the appendix to Form No 20-sn, on which construction organizations are to indicate the principal reasons for overexpenditure of supplies and materials, as well as to regularly run on-the-spot checks at construction sites.

The present reporting system makes it possible to comprehensively analyze the potential that exists for increasing the efficiency of construction work, specifically by improving the use of manpower and fixed productive capital and by reducing unproductive expenditures and losses. Better use should be made of these reports and also reports on the quality of construction. The data of reports of builders and construction organizations on the quality of projects accepted for operation would best be supplemented for comprehensive analysis of quality with the material of sample checks on the reliability of reports concerning activation of production capacities, housing and cultural and consumer service facilities, as well as with the data of industrial statistics on attainment of capacities at newly activated facilities and reports on the costs of construction and installation work reflecting the size of losses from rejects and work improperly done.

Great attention will have to be paid in analytical work to the development and elaboration of cost accounting and to enhancement of the role of economic incentives in the achievement of the end results of construction. In particular there is a need to improve economic data on development of the progressive form of cost accounting in construction--the construction crew job contract according to the method of N. A. Zlobin. At the beginning of this year 34.5 percent of all crews were working according to this method; but this percentage is very low in a number of republics and oblasts where the crew job contract is slow to be introduced.

The decree envisages measures to improve project planning and cost estimation toward improvement of the quality of project planning and reduction of project planning time and toward less expensive construction. Five-year plans of project planning and survey work, of development of the network of the material and technical base of project planning and surveying organizations linked to capital construction plans are to be drafted and approved.

We must admit that little attention is being paid as yet to preparation of statistical and economic information on these matters. At the same time primary reporting of these organizations has recently been revised and supplemented with a number of new indicators reflecting the qualitative aspect of project planning, including such aspects as the number of project plans (work topics) completed on time and ahead of schedule, the number of project plans commended for high (excellent) quality, the number of projects returned by expert evaluation committees for reworking, losses and unproductive expenditures of the product planning organization, the estimated cost of the work of redoing and changing project plans to be reimbursed by customers, etc.

There is a need to considerably improve the analysis of these reports, making use as well of the results of the survey on Form No 1-ef on project planning times, builders' reports on Form No 8-ks and the data of Gosekspertiza [State Service for Expert Evaluation].

Settlement should now be made between clients and project planning and surveying organizations for altogether finished and client-accepted project plans for construction of enterprises and complexes, phases and facilities capable of independent activation. At the present time more than 60 percent of all project planning and survey work is being paid for in accordance with this progressive settlement procedure. The data of reports on activity of project planning organizations under the new conditions should also be analyzed.

Successful performance by state statistical agencies of the tasks arising out of the decisions of the party and government concerning improvement of planning and enhancement of the effect of economic instruments on raising production efficiency and the quality of performance will make it possible to raise the statistics on capital construction to a new and higher level.

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7045
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS OF INCREASING EFFICIENCY OF CAPITAL CONSTRUCTION

Vilnius SOVETSKAYA LITVA in Russian 16 Oct 79 p 2

/Article by S. Movshovich, Manager of the Lithuanian Republic Office of USSR Stroybank: "A Greater Return on Each Ruble: Problems of Increasing the Efficiency of Capital Construction"/

/Text/ From year to year our republic experiences growth in the volume of capital construction--this most important sector of the national economy, upon the development of which, to a large extent, depends the workers' well-being. Large sums are expended on the construction of plants, factories, apartment houses, and other projects. During the present year alone capacities were put into operation producing fertilizers at the "Azot" Ionization Association, provisions have been made to put into operation the first stage of the Mazheyskiy Oil Refinery, the canning section of the Klaypedskiy Dairy Combine, as well as a number of other enterprises and agricultural structures. In the field of capital construction, however, there are still substantial shortcomings: the time periods alloted for introducing individual capacities are being dragged out, at times plans are not fulfilled, and a better organization of operations is still to be desired. It is not just by chance that particular attention was paid to this field in the decreee of the CPSU Central Committee and the USSR Council of Ministers, "On Improving Planning and Strengthening the Influence of the Economic Mechanism on Increasing Production Efficiency and Work Quality."

What do we understand by the words "increase the efficiency of capital construction?" This means that we must strive to obtain the greatest return on each ruble which we spend on capital investments. With this goal in mind, the decree provides for the maximum utilization of such levers of the economic mechanism as improvement in planning, widespread utilization of banking credits, regulating accounts in the national economy, and so forth.

Needless to say, if even the tiniest miscalculation is allowed in the planning at its initial stage, it would lead in practice to an entire series of errors and deviations. This can be avoided if the planning for capital investments is based on the five-year plans and the title lists for construction projects, compiled for the entire period of operations with a breakdown by years and in accordance with the established norms for the duration of the construction. Moreover, in accordance with the decree, the title lists are approved only in case on 1 July of each current year (i.e., of the year preceding construction) the necessary planning-estimate documentation is presented, and the working drawings are prepared for the volume of the first year of construction. This will allow us to ensure the continuity of planning and financing capital construction as well as to curtail the number of projects which are being built at the same time. It is no secret that we sometimes start erecting new structures, when those which are being built, the so-called buildings "in progress," are not guaranteed the funds to be completed on time. In our republic the volume of unfinished construction is comparitively modest--it comprises about 53 percent of the annual amount of capital operations. However, the number of projects under construction at the same time is quite large--more than 5,000 production-type structures alone. Obviously, they cannot all be guaranteed the necessary materials, raw materials, and manpower, and this explains the urgency of the problem of curtailing their number and concentrating the resources which we do have.

Beginning next year, the erection of production-type capacities will be conducted more extensively by means of long-term credits from Stroybank; the latter will become the principal source for financing capital construction. Credit is essentially money, taken on as a debt, and in order to return it on schedule to the bank (naturally, with a modest amount of interest), the ministries, departments, and enterprises strive to be economical in drawing up their estimates, to turn over projects in the shortest possible time periods, to more rapidly assimilate production capacities and begin production output in order to obtain profits by means of which the indebtedness can be amortized. In case this does not happen, the group bears large material losses in the form of fines, payment of higher interest rates, etc.

With the introduction of banking credit there will be changes in the mutual relations between the client and the contractor, as well as in the structure of the operating capital of construction organizations. During the 11th Five-Year Plan the intention is to have a client's accounts with a contractor carried out only for projects for which the "key has been turned over"--i.e., for those which are completely finished. Clients will cease transmitting advance payments to contracting organizations; these will be replaced by Stroybank's credit, which will be issued in strict accordance with the amount of construction and installation work completed. Because of this, there will be an end to the practice whereby money is obtained even before the services have been rendered. A firm procedure will be established, under which, if a construction organization wishes to have funds, it must complete a project. But until the work is finished, it must continue to be in debt or pay a rate of interest.

For a number of years now subdivisions of the Lithuanian Ministry of Construction within the framework of an experiment being conducted by us have been carrying on accounts with clients in accordance with the procedure indicated above. Each year the Lithuanian Republic Office of USSR Stroybank issues credit to contracting organizations in the amount of about one billion rubles. Long-term credit was used, for example, to carry out the construction of the Alitus Cotton Combine, the Vilnius Bakery, and several other enterprises. This experiment has produced positive results. During the past two years the republic's Ministry of Construction has fulfilled the plans for commodity production, i.e., it has put projects into operation on schedule. Over this time the periods alloted for their construc- were curtailed, and the amount of unfinished construction was reduced. And credit levers played no small role in this matter. If the introduction of a project is delayed for three months beyond the time period established by the plan, then a five-percent rate of interest must be paid for the use of credit, and this amounts to a considerable sum. On the other hand, if the project is turned over on time, then the amount of interest levied by Stroybank is reduced to 1/5, while if the project is turned over prior to the time alloted, the amount is reduced to 1/10. This has substantially strengthened the financial position of the groups involved, increasing their bonus funds.

Improving the economic mechanism also presupposes a strict observance of plan discipline and a speed-up of accounts in the national economy. In order to increase the material responsibility of suppliers for fulfilling their contractual obligations and those of buyers for the on-time payment for supplies, provisions have been made for the application of reciprocal sanctions. At the same time, in order to ensure the on-time payment for output within the time periods agreed upon, the banks have been permitted to grant payment credit for a term of up to 60 days, levying an interest rate of five percent per annum. In case the loan is not reimbursed on time, the interest rate levied will be doubled.

An important role in improving the efficiency of capital investments is being delegated to the planning organizations. Their accounts with clients will now be carried out according to the same principle--for completed and accepted documents. In order to finance their own expeenditures prior to turning over the plans, these groups will be able to utilize banking credit. To a large extent, the correct planning of capital investments depends on the work of the planning organizations. Together with the clients, they must guarantee the stability of the estimated construction cost. Such cases as the following are completely inadmissable: in the "Azot" Ionization Association, when during the course of modernizing one of the workshops, it was suddenly disclosed that the "Giproazot" Planning Organization had failed to provide, either in the plan or in the estimate for an entire series of operations, costing a total amount of 600,000 rubles. Such miscalculations lead to a situation where the planning materials must be revised and estimates reapproved with considerable increases in construction costs. Thus, in the first six months of the present year alone the estimated costs of 19 projects, financed by the Lithuanian Office of Stroybank, were increased by 44.8 million rubles.

It is well-known that one of the reasons why operational schedules are violated in construction is the failure to supply projects with the necessary materials on time. This occurs because material resources are distributed around the construction projects not by taking specific needs into consideration but in accordance with averaged-out norms, adopted on the basis of an extremely provisional calculation: how much and what kind of materials are required to carry out construction operations in an amount costing one million rubles. But now we will be assigned the task of guaranteeing a strict balance between the construction plans and the resources expended. And their distribution will be carried out in strict accordance with the working drawings and the time periods established.

All the measures enumerated above are called upon to facilitate the improvement of the efficiency of capital investments in construction. Their implementation requires the serious restructuring of the activities of construction subdivisions and clients, of planning and supply organizations, as well as of financial organs and banks. They are all faced with a great deal of work, upon which the growth of our economy will subsequently depend in the final analysis.

2384
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IMPROVE METHODS OF CONTRIBUTION PAYMENTS

Tallin SOVETSKAYA ESTONIYA in Russian 14 Nov 79 p 2

/Article by S. Strenze, Deputy Manager of the Estonian Republic Office of USSR Stroybank: "Contribution Payments"/

/Text/ It is generally well-known how effective in our country has been the implementation of the program providing for the growth of the Soviet people's well-being. Just as well-known are the unchanging conditions of this growth--an increase in labor productivity, the careful utilization of materials and means, and an improvement in output quality. And here in the decree of the CPSU Central Committee and the USSR Council of Ministers on improving the economic mechanism among other conditions are further designated the improvement of administration and planning. Therefore, the logical thought occurs that to administer and plan rationally means to facilitate the solution of the five-year plan's principal task.

Particular importance attaches to improvements in planning in construction, where plans are disrupted with regard to the growth of labor productivity and, hence, with regard to the introduction of completed projects as well. We shall speak further about this later on in this article, but for now let us note that our republic has a well-developed network of contracting organizations and enterprises in the construction industry, and they are capable of successfully solving the major problems of economic and social development. Proof of this is the annually growing program of construction and assembly operations. From 1951 to 1978 the annual volume increased approximately 10-fold. Output per worker increased 5-fold, and the number of workers calculated for every one million rubles of completed amounts was reduced from 342 persons in 1950 to 76 persons in 1978.

At the same time intensive factors in the development of our construction production have not been fully utilized. For example, wages, taking into consideration the personal contribution of each construction worker. And so they still do not act as a stimulating incentive in raising labor productivity. The growth with regard to this indicator in the country during the years 1976--1978 amounted to only 8.5 percent, instead of 15.8 percent, as planned. A lag was also permitted by our republic's construction organizations, and especially the system of the ESSR Ministry of Construction, where there has been a decline in output per worker. Let us note that in a number of instances the indicators reflecting the fulfillment of output norms have been artificially inflated by means of supplementary attachments. It hardly needs to be said that such a practice inflicts not only economic harm but also has a negative effect on the moral-psychological climate in production groups, creating the appearance of well being in the construction process at construction sites.

We should remind ourselves here of the well-worn truism that in construction, as in other fields as well, it is of principal importance to provide a distance between the growth rate of productivity and the growth of wages. But we have quite a few facts to the contrary. Thus, the growth of wages in the Parnus PMK (Mobile Mechanized Column) of the "Sel'khozstroy" Trust has surpassed the growth of labor productivity by 21.5 points and that of the Vyrus PMK by 6.7 points. There is also a corresponding surpassing in the accounts of the subdivisions of the "Tallinstroy" Trust.

What is hidden behind these facts? In the first place, there are substantial shortcomings in the organization of operations at the construction sites. According to an estimate made by the Estonian SSR Gosstroy, these miscalculations have led to a reduction of output in our construction which amounts to 2--2.2 percent. The situation has been complicated by disruptions in the plans for mechanization, and these have led to an increase in the proportion of manual labor. And what is characteristic is that many construction organizations have too lightly approached the problem of cutting down labor expenditures, drawing up plans for organizational and technical measures with long delays with respect to the time periods required.

Formalism remains alive here, along with the non-specificity of proposed solutions; the curtailment of labor expenditures is not grounded in economic calculations. And, as a result, there have arisen over-expenditures of monetary funds beyond outlays and illegal payments. And this is done in the name of maintaining the wage level which has been attained. If it has not reached the ordinary total with respect to the indicators for the basic operation, then orders are set into motion for, so to speak, auxiliary and ancillary operations, not included in the calculation of labor expenditures. There have been a particularly large number of payments for auxiliary operations in the subdivisions of the "Tallinstroy" Trust. Its managers, moreover, have not been terribly concerned about the constant over-expenditure of the wage fund. During the first two quarters of the present year alone the overexpenditure here exceeded 300,000 rubles. Matters are just as bad in the rural construction trust.

Here is the right time to speak about another matter. As is well-known, wage funds are planned, but we often do this without taking into account the operational structure, and this brings about over-expenditure of wage funds in some organizations and unfounded economies in others.

Serious censure has also been caused by the planning of indicators with regard to labor with a breakdown by quarters. In this case there is often allowed an abrupt variation of indicators between the fourth quarter of the previous year and the first quarter of the year being planned. In such cases it is necessary to free up or take on a large number of workers, which, in fact, is very difficult. Nor does this facilitate a speed-up of construction or the emergence of labor groups.

Undoubtedly, such flaws in planning have lowered the responsibility of the first-line contracting organizations for accomplishing tasks with regard to the growth of labor productivity and the expenditure of wage funds. At the beginning of the year alone within the system of the Estonian SSR Ministry of Construction more than 100,000 rubles was paid out illegally, of which 26 percent went for payments for operations not provided for by the plan-estimate documents, while 22 percent comprised supplementary attachments and extra payments to skilled workers up to the wage rates in connection with the use of such workers in fields other than their specialties.

It is characteristic that the construction organizations permit surplus payments not without the knowledge of the jurisdictions above them, which (this pertains primarily to the Estonian SSR Ministry of Construction) permit supplementary deductions to be made without sufficient analysis of the reasons for the overexpenditure; they do not take effective measures to reimburse the wage funds, nor do they monitor this process at the sites.

As we have seen there are many negative examples. And the trouble is that the builders have simply gotten used to them and are in no hurry to correct them. Consequently, it will be all the more difficult for them to make the transition to the new principles of planning and stimulating production, when the indicator of the volume of commercial construction output is advanced as the most important factor, and when the demand will be carried out more stringently for the utilization of every ruble of capital investments.

2384
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IMPORTANCE OF END RESULT IN CONSTRUCTION INDUSTRY STRESSED

Tallin SOVETSKAYA ESTONIYA in Russian 20 Nov 79 p 2

[Article by L. Sokk, Sector Chief of the Scientific Research Institute of Construction of the Estonian SSR Gosstroy, Candidate in Economic Sciences: "The Reference Point Is the End Result"]

[Text] As is well known, the decree of the CPSU Central Committee and the USSR Council of Ministers on improving the economic mechanism contains a number of inter-related measures with regard to further improving the activities of construction organizations. These measures are directed at increasing the efficiency of capital investments and at speeding up the putting into operation of production capacities and projects.

Let us note that such measures are extremely timely. We are convinced of this by an analysis of the fulfillment of state plans for 1979 in the republic's construction organizations. Let us cite the following facts for the sake of example. For half a year by means of capital investments some 190 million rubles worth of fixed capital was put into operation, amounting to 17 percent more than for the corresponding period of last year. It would seem that there was no cause for alarm. But let us take another period--three and a half years of the five-year plan. The construction organizations of the Estonian SSR Ministry of Construction assimilated 513.8 million rubles and put into operation 1,397,100 sq. meters of housing. Nevertheless, during the same period 54.2 million rubles were not assimilated. The reasons are well known. All the more significant are the amounts of unfinished construction, the violations of the normative time periods for completing operations, the insufficiently high organizational-technical level of production, etc.

During the past few years a number of party and government decrees have been adopted which are aimed at further improving the construction industry and its production base: on further developing and improving the use of precast, reinforced concrete, on developing the production of porous fillers, as well as other efficient materials and items, and on developing structural science.

A particular place is occupied by the decree on improving the economic mechanism. Essentially it means that a new stage has begun in the overall re-equipping of construction production. The main reference point will now be the attainment of high end results.

It must be noted here that the preparation and approval of the new economic mechanism in construction was preceded by a number of economic experiments in the country; these determined the specific thrusts for improving matters in capital construction. Everything valuable and advanced also appeared in the fundamentals of the new decree.

It is well known that at the present time construction administration is regulated by the economic reform of 1969. In particular, measures were spelled out with regard to improving planning, raising the quality of plan-estimate documentation, strengthening and improving economic incentives, broadening the independence and initiative of the construction and installation organizations, strengthening cost accounting, etc. The implementation of the economic reform has played a positive role in the development and improvement of capital construction, but its individual parts have not yet provided sufficient guidance for all participants in the construction process to achieve end results for the national economy.

Thus, it was necessary to take the next step. This is what the recent decree represented. Provisions were made to conduct the evaluation of the economic activities of the construction organizations and their economic incentives not with regard to the total volume of operations but by taking into consideration the fulfillment of tasks concerned with putting into operation production capacities and projects, commercial construction output, the growth of labor productivity and profits.

The decree also provides for a number of measures in the area of production organization in the lower-level units of construction. For example, a widespread dissemination of the brigade contract, bearing in mind that during the 11th Five-Year Plan this form is to become the basic one.

During the first six months of 1979 the brigade-contract method was used in the republic in completing construction and installation operations amounting to more than 54 million rubles worth, and this exceeds last year's level by 22 percent. The total number of brigades which have been converted to cost accounting amounts to about 550 at the present time, and they encompass more than 6,000 builders and installation workers. There is also the well-known experience of the group of the Tallin DSK (Home-Building Combine), which introduced the method of the through brigade contract, extending throughout the entire technological chain "plant--transport--construction project."

The decree on improving the economic mechanism represents an economic policy which specifies the social program as well as the goals, the basic thrusts of the society's production activity. It is taking its material form on the foundation of the development and sequential implementation of the structural, organizational, and technical policy.

And here it is appropriate to note the following: the technical policy in construction also needs to be refined. For example, there is now a need to work out the principal technical trends in technological and construction planning. It has been clear for a long time that the distribution of new enterprises, as a rule, should be carried out within a complex of industrial units. If we carry out the construction of sources of heat and energy supply in common for a group of enterprises, along with auxiliary workshops, motor-vehicle facilities, transport routes, everyday service areas, eating facilities, etc., then, as analysis has shown, we can save on as much as 20 percent of the production area and quite a bit of capital investments.

We refer to the following fact. Our republic has quite a few enterprises with a modest number of workers--less than 200 persons each; however, their plans for construction and social development are not coordinated among themselves. But, of course, coordination of these plans would allow us to carry out the necessary renovation and modernization of enterprises without serious changes in the construction component.

Let us also take note of the following factor: it is axiomatic that to solve the problems of improving production means to increase labor productivity. Not to create new workplaces but rather to renew fixed assets, to free up manpower from existing enterprises. The experience of the enterprises of Sverdlovsk Oblast proves that the modernization, expansion, and technical re-equipping of existing enterprises is the correct path to the improvement of production efficiency. It has allowed a significant increase in output to be made with less capital outlays as compared with new construction.

But by inertia the modernization of enterprises is still identified with new construction. This is an incorrect point of view. The fact is that because of an imperfection in the mechanism used for evaluating the labor of builders (concerned only with the amount of funds assimilated), they are not interested in carrying out precisely these operations. The reasons are well known. It is crowded to work in an existing enterprise and impossible to utilize efficient equipment. Plan-estimate documents are often issued without taking the actual situation into consideration. Both for the construction organizations and for the planning institutes it is still more advantageous to build new projects than to renew existing ones.

And the decree calls for the solution to this problem. From now on, when the measuring-rod of labor becomes the finished project and the system of material incentives is revised, these conflicts disappear. Naturally, the planning organizations are now confronted with new tasks. They must work out plans and estimates (while construction of the enterprises continues for more than two years) not for the enterprise as a whole but rather for its first phase, being guided by the general plan for the enterprise's development. At the same time as the first phase is being built, work will be conducted on planning the subsequent phases. The estimated construction cost of each of the phases is approved within the limits of the over-all estimated construction cost of the enterprises; this is determined in the technical and economic grounds (TEO).

A considerable amount of work also confronts the contracting organizations with regard to guaranteeing the plan profits. As is well known, most financial losses these days fall on the small-scale construction organizations. And, therefore, we need to restructure the administration of the construction sector on the basis of creating large, production, construction-and-assembly associations. The decree mentioned above provides a directive for developing and implementing measures to improve the administration of capital construction, bearing in mind the shift in 1979 --1981 to a two-three link system of administration. And the foundation has already been laid.

At the beginning of this year, based on the Kaliningrad Territorial Construction Administration, a production construction-and-assembly association was created, and construction administrations were placed under its jurisdiction. As a result, the plan for the half-year was fulfilled for the first time in several years.

Is this experience applicable under the conditions of our republic? We think that it is completely so. At the same time that we have a restructuring of administration it is necessary to eliminate the dissociation of construction organizations among various ministries and departments. Supervision of the construction associations must be carried out by a single organ of administration of the republic's construction production.

Here we need to take the following factor into consideration: the restructuring of the construction administration must not be conducted according to the voluntary principle. A profound study of the entire existing mechanism of administration is required in order to correctly distribute the functional obligations among the various levels and units of administration, proceeding from nationwide interests, and taking into consideration the principle of combining the sectorial, territorial, inter-sectorial, and local aspects of administration.

In short, the builders are faced with great problems. Moreover, it is impossible to solve them in various directions at the same time. In connection with this there is now obviously a need to seriously concern ourselves with creating an inter-departmental coordinating body which would unite scientists, specialists, and enthusiasts for the creative study of the decree on improving the economic mechanism in order to work out specific proposals for applying them under the conditions of our republic. For the transition to the new methods of administration in construction requires a well-coordinated and highly organized preparatory work.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

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REVIEW OF ACCOMPLISHMENTS IN MOSCOW DURING 1979

Moscow GORODSKOYE KHOZYAYSTVO MOSKVY in Russian No 12, Dec 79 pp 2-3

[Article: "Concluding the Year 1979"]

[Text] The year 1979 is receding into history. For the residents of Moscow, just as for all of our Soviet people, each year lived through represents an important goal achieved and a point of reference before taking a new step forward.

Each five-year plan and each Soviet year serve to perpetuate the best traditions of the first Leninist communist subbotniks, the shock-workers movement, the Stakhanov movement and the movement for a communist attitude towards labor. At the same time, each of our years is characterized by a new surge of creative activity by the masses and by new initiatives and undertakings.

Thus, greater collaboration is being displayed among the workers, engineering-technical personnel and scientific workers and this has promoted the development of a competition under such slogans as: "A Guaranty of Quality -- From the Plan To the Product," "For the Five-Year Plan for Efficiency and Quality -- First Class Equipment," "Raising Labor Productivity Based Upon Improvements in the Use of Equipment." Today thousands and thousands of leading production workers throughout the capital are striving to complete their personal five-year tasks prior to the 110th anniversary of the birth of V.I. Lenin and many have already fulfilled their obligations.

The patriotic undertakings of the residents of Moscow are in direct response to the historic decisions handed down during the 25th CPSU Congress and subsequent plenums of the Central Committee. The Party emphasizes that a most important task is that of making more complete use of the intensive factors of economic development and further intensifying the efforts aimed at raising the efficiency of social production and the quality of work. This campaign must be carried out in all branches of the economy and at all levels of production and control, with special attention being given to raising labor productivity, introducing scientific achievements, leading experience and new equipment and technologies into production operations, placing available reserves in operation for the purpose of increasing output production and raising the technical level of production with minimal expenditures.

The residents of Moscow accomplished a great deal during 1979 in implementing the decisions handed down by the Party and in carrying out the tasks of the Tenth Five-Year Plan. The figures and facts clearly testify to the unanimous desire on the part of the residents of the capital to multiply the accomplishments already achieved and to continue further into the future the competition for labor accomplishments. This desire is manifested most of all in the campaign by the residents of Moscow to transform the capital into an exemplary communist city.

Moscow must serve as an example of efficient development of productive forces based upon scientific-technical progress and it must be a city suitable for human life and possessing good planning and architecture, a modern level of civic improvements and all types of services for the population. The inhabitants of this exemplary city must be highly conscientious, organized and well disciplined and good will and an attitude of respect among people must reign throughout the city.

All of these characteristics are very important. However, a requirement exists first of all for making the city's economy exemplary in nature. Without negating the importance of the other factors, it can be said that priority belongs to the sphere of production, where all of society's material wealth is created. Thus, special importance is attached to the fact that during 1979 15 more enterprises earned the title of model enterprise. Included among them were the Trolley Depot imeni Apakov, the Kommunal'nik Plant, Municipal Polyclinic No. 51, Pedagogical Institute No. 5, Secondary General Educational School No. 171 and Department Store No. 5 of the Gastronom Market.

The successful work performed by the collectives of an overwhelming number of enterprises of industry, transport, construction and the municipal economy in the capital is borne out by the results achieved in fulfilling the established tasks and socialist obligations. The foundation for these successes was laid at that time when the plan for three quarters of this year, for the sales volume for products of Moscow industry, was fulfilled by 101.4 percent and the established task for this index was completed by all enterprises.

The output sales plan of the industry of Mosgorispolkom [Executive Committee of the Moscow City Soviet of Workers' Deputies] was fulfilled by 101.1 percent. Approximately 19 million rubles worth of goods were produced over and above the plan. Compared to the corresponding period for last year, the volume of industrial output increased by 2.1 percent. The greatest rates of growth in production volume were achieved by industrial enterprises of Glavmosavtotrans [Main Administration of Automobile Transportation of the Mosgorispolkom] (4 percent), Glavmosmontazhspetsstroy (3.2 percent), Glavmoszhilupravleniye (8.3 percent), Glavmosdorupravleniye (9 percent) and the Administration for Domestic Chemistry Goods and Rubber Products (11.1 percent).

The principal condition for success is that of motivating all of the members of a collective to participate on an extensive scale in solving the tasks confronting them. This point was made very well by Comrade L.I. Brezhnev, during a meeting with workers at the Motor Vehicle Plant imeni Likhachev, when he stated: "The work of organizing collective labor in a truly efficient manner is a tremendous task and one requiring a great amount of attention not only on the part of the leaders of a collective. Modern production operations require that each worker possess a clear understanding of the role he plays in the labor process, what he does and why he does it, what is dependent upon his work and he must sense that his work is a necessary part of the overall operation. Thus the economic leaders of enterprises throughout the city and their social organizations are constantly orienting the labor collectives towards raising production efficiency and the quality of work in every possible way, constantly searching for reserves, achieving economies and greater thrift and strengthening planning and labor discipline.

For example, the collectives of Glavmosavtotrans transported a considerably greater amount of freight in behalf of the plan, than the figure called for in the socialist obligations. The builders and workers attached to the construction materials industry have reported upon their successes. Hundreds of residential buildings were placed in operation. Prior to the commencement of the school year, 19 school complexes, new buildings for technical schools and a PTU [vocational and technical school] and a number of dormitory facilities were turned over for operation. Work was completed on the erection of a new educational building for MGU [Moscow State University imeni M.V. Lomonosov]. Three faculties of the largest VUZ in the country are accommodated on the eighth floor of a building on Lenin Hills.

The All-Union Scientific Research Center for Protecting the Health of Women and Children has opened its doors on Volgina Street. This complex, containing the last word in medical equipment, was built using funds obtained from work carried out on days off. A number of cultural-domestic installations were built, including a childrens' musical theatre on Bernadskiy Boulevard. The construction projects for just one year alone served to transform the capital; they represented still another stage in the program aimed at converting the city into a model communist city.

The year 1979 became a year devoted to further developing the material-technical base of trade and public catering and to raising the level of services being made available to the population. More than 100 additional stores and departments for accepting advance orders for food goods, semi-finished products and culinary and confectionery items were opened in the housing developments and at industrial enterprises. Approximately 50 additional mechanized lines for the preparation and issuing of dinners were placed in operation in the dining halls of industrial enterprises and educational institutes. An increase took place in the sales volume for packaged goods and also for products sold by means of the progressive self-service method.

During nine months of this year alone, the trade and public catering collectives fulfilled their plan for retail trade turnover by 101 percent. More than 122.6 million rubles worth of goods over and above the plan, or 153.3 percent of the amount in the annual socialist obligations, were sold to the population during this period. The sale of internally produced products amounted to 11.4 million rubles, or 2.5 times more than the figure called for in the obligations.

As is known, the 25th CPSU Congress outlined a broad program of social development for the country, a program which calls for steady improvements in the material and cultural standard of living for the nation and greater prosperity for the Soviet people. An important part of this program is that of concern for further developing and improving domestic and municipal services for the population. The sphere of services in the capital is confronted by the task of satisfying more completely the constantly increasing needs and requirements of the people, raising the quality of the work and making the services available to all indiviauals.

In carrying out the plans as outlined, the collectives of domestic services enterprises in Moscow fulfilled their annual socialist obligations with regard to the sale of services to the population, prior to the 62d anniversary of October. Their plan was exceeded by 2.69 million rubles worth of services. Approximately 1,610 new and modern models of clothing, footwear and leather and fancy-goods items were developed and introduced into production operations and 6,700 units of new and highly productive equipment and light mechanization machinery were installed (instead of 6,300 units, as called for in the annual obligations). During this same period, 24 complex receiving points were opened and 285 domestic services enterprises underwent repairs and not just 250 as called for in the obligations.

The collectives of the Mosgorremorgtekhnika Plant, Factory No. 4 of the Trud Production Association, many enterprises of the Administration for the Sewing and Repair of Clothing in Response To Individual Orders of the Population and so forth, constitute the vanguard of those organizations participating in the competition. Importance is being attached to taking into account the experience of the best organizations, to following their example in the interest of attaching greater creativity to labor and to the great opportunities that are available for searching for production reserves. The experience of the best and leading workers must be made available to each member of a collective in the interest of achieving the best results and providing assistance to backward workers.

In connection with the task of transforming the capital into a model communist city, a great amount of purposeful work has been carried out in recent years aimed at improving buildings, territories, installations and the overall level of sanitary maintenance. This year, a distinctive feature of the campaign directed towards improving the streets, arteries, squares, public gardens and approaches to the city was the ever-increasing participation in it of collectives of enterprise and organization workers and all Moscow residents.

Special importance is attached to the decree of the Bureau of the CPSU MGK [Moscow City Committee] entitled "Concerning the Letter of N.D. Denesh," in which importance was placed upon the need for developing high moral qualities in Moscow residents, improving the behavior of people in production and in public places and raising the culture of labor and the personal participation and responsibility of each individual for the maintenance of cleanliness and order in the capital. In response to the decree, additional volumes of work were planned in the regions for implementing further civic improvements, with use being made of the internal economic potential of enterprises and institutes furnishing support for the housing microregions, work was started in connection with the creation of voluntary repair brigades and other measures were carried out.

As a result of an extensive socialist competition and an all-city inspection aimed at restoring order to buildings and housing areas, the capital's workers and residents succeeded on the whole in carrying out those obligations aimed at implementing further civic improvements throughout the city. The plan for the capital repair and improvement of dwellings was fulfilled by 104.1 percent and current repairs -- by 100.9 percent. More than 5 million square meters of building facades were improved and the tasks for road repair and construction were over-fulfilled.

Of the more important work carried out, the completion of the first phase of reconstruction of the Moscow circumferential highway is deserving of special mention. The asphalt surface on an 11 kilometer sector of this road was replaced and underground crossings were installed. Work was also completed on the construction of a service road for Leningrad Boulevard, on the sector extending from the Sokol subway station to Begovaya Street. The sector of Michurin Boulevard which leads to the Olympic Village was reconstructed.

In order to raise the level of maintenance of main highways and municipal territories, approximately 800 machines and mechanisms were placed in operation. The plan for four years of the five-year plan, for the repair of road surfaces, was fulfilled in conformity with the adopted socialist obligations ahead of schedule prior to 1 October and in the volume of 27.7

million square meters. In addition, complex improvements were carried out on 517 hectares of forest and park land, instead of only 515 as called for in the socialist obligations.

The best results in the carrying out of civic improvement obligations were achieved by the collectives of enterprises and organizations in Zhdanovskiy Rayon. They successfully carried out their established tasks in terms of all indices and they ensured the timely preparation of dwellings, administrative buildings, central heating systems, heating lines and heating points for operation during the 1979-1980 winter period. Fine results were also achieved during the competition by the workers in Voroshilovskiy, Kiyevskiy, Kuntsevskiy, Kuybyshevskiy, Lyublinskiy and Perovskiy rayons.

It is impossible to enumerate everything that was accomplished by the residents of Moscow during 1979. This serves as clear proof of the loyalty of the city's workers to the glorious revolutionary and labor traditions and it underscores their unanimous support for the work of our party, which is implementing peaceful policies in a consistent and purposeful manner and constantly improving the welfare of the people. The decision handed down by the MOK [International Olympic Committee] to have the 22d summer Olympic Games conducted in Moscow serves as strong recognition of the great contribution made by the Soviet state, the Communist Party and personally by the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade L.I. Brezhnev, towards the relaxation of international tension and towards the work of strengthening peace throughout the world.

The year that is ending has been of special importance in connection with preparing the city for the 1980 Olympic Games. The decisions handed down during the Plenum of the CPSU MGK concerning "The tasks of Preparing For and Conducting the 22d Olympic Games of 1980 in the City of Moscow," raised the task of ensuring the completion of construction work on all Olympic Games projects during 1979. A portion of these projects were placed in operation prior to the commencement of the final competitions of the 7th Summer Games of the people of the USSR. Work continues on the remaining projects.

Increased attention has been focused on olympic construction work and greater exactingness is being imposed upon economic leaders for ensuring the timely fulfillment of the plans and obligations for each olympic project and its introduction into operations in accordance with the established schedule. Enterprises and organizations organized efficient patronage assistance for the olympic construction projects. This assistance was especially active during the summer in connection with the carrying out of civic improvement work and the preparation of buildings and territories. Shock komsomol-youth and student construction detachments performed successfully at the projects.

The measures undertaken had a very positive effect on the course of construction. Several enterprises of the permanent public catering network, a main telephone terminal, a directorate building and also a building in the Olympic Village were all turned over for operation. Approach roads leading to the competition areas and to the tourist accommodation areas were placed in operation ahead of schedule. The norms for the construction of a building for the Television-Technical Center imeni 50-Letiye Oktyabrya were over-fulfilled to a considerable degree and a considerable volume of work was carried out in connection with the construction of an enclosed bicycle track at Krylatskiy.

There is no need for mentioning all of the projects. Beyond any doubt, they will all be placed in operation in accordance with the established schedules. However, this requires greater coordination of the work being carried out by all organizations participating in the planning and erecting of unique projects. The builders must be provided with comprehensive assistance if they are to fulfill their plans and obligations.

The year that is now coming to a close has witnessed many events of truly historical significance. In the sincere and moving speech delivered by Comrade L.I. Brezhnev before voters in the Baumanskiy Election District on 2 March, measures were developed and defined for implementing the tasks associated with the country's economic and social development, tasks which were developed during the 25th CPSU Congress. The elections to the USSR Supreme Soviet, which took place thereafter, demonstrated with renewed force the monolithic solidarity of the residents of Moscow around their native Leninist party.

The decree adopted in April by the CPSU Central Committee, entitled "On Further Improvements in Ideological and Political-Educational Work," defined the strategy and tactical actions to be used for carrying out the program goals of the party in the sphere of developing a communist consciousness in the people. This decree requires an increase in the efficiency and specific nature of propaganda and agitation and in their links with life and with solving economic and political tasks and it also requires persistent efforts aimed at strengthening labor and state discipline and raising responsibility for assigned tasks.

An intensification of agitation and propaganda work is especially important at the present time, during this period of serious economic reorganization, owing to the adoption of very important documents -- decree of the CPSU Central Committee entitled "On Further Improvements in the Economic Mechanism and the Tasks of Party and State Organs" and the decree of the CPSU Central Committee and the USSR Council of Ministers "Improvements in Planning and Intensifying the Effect of the Economic Mechanism With Regard To Raising Production Efficiency and the Quality of Work." Improvements in the economic mechanism in turn requires serious improvements in the organization of the educational process directly in the labor collectives. The introduction of new and progressive indices for evaluating and stimulating their activities, the conversion over to brigade forms for the organization of labor and strict observance of contractual obligations --

all of these factors are associated with the need for overcoming the forces of inertia both in the methods of management and in the approach employed for management. This in turn requires a higher level of conscientiousness on the part of the people, including economic leaders, a thorough understanding of their assigned tasks, a higher level of responsibility and strict observance of planning, production and labor discipline by a collective of workers on the whole and by each individual worker.

While summarizing the results of the fourth year of the five-year plan, the residents of Moscow are at the same time making preparations for the final year. It will be a year devoted to national creativity -- 110th anniversary of the birth of V.I. Lenin. In honor of this glorious date and by way of responding to the decisions handed down by the party and government, the workers in the capital launched a socialist competition on an extensive scale. This will be the year of the 1980 Olympic Games -- an international sports forum, which for the very first time will be held in the capital of the world's first socialist state. And it will be a year of tense preparations for the 26th CPSU Congress, the principal goal of which will be -- well-being and happiness of the people.

It is a matter of honor for each resident of Moscow to make a worthy contribution towards fulfilling all of the plans outlined by the party, consolidating the successes already achieved and mobilizing all forces for the purpose of realizing new labor achievements. A thorough and creative search for reserves, increasing enthusiasm and more control over the masses based upon scientific methods of management -- these are the factors which provide a reliable guarantee for multiplying successes.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

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MEASURES FOR IMPROVING HOUSING RESOURCES IN MOSCOW DESCRIBED

Moscow GORODSKOYE KHOZYAYSTVO MOSKVY in Russian No 12, Dec 79 pp 19-21

[Article by V.F. Shcherbakov, chief of Glavmoszhilupravleniye: "Homes -- For Public Preservation"]

[Text] Recently the Bureau of the CPSU MGK [Moscow City Committee] and the Executive Committee of Mossovet [Moscow City Soviet of Workers' Deputies] examined the problem concerning "The Initiative of Residents of Zhdanovskiy Rayon in the City of Moscow With Regard To Accepting Dwellings for Public Preservation." It is mentioned in the decree that the residents of a number of microregions have undertaken patriotic obligations. Thus a voluntary repair brigade was created at House No. 13 on Kovrovyy Lane. This brigade has resolved to carry out a number of operations in connection with the current repair of the building, to improve the yard territory, plant trees and shrubs, to install additional small architectural forms and also to organize constant watches at the entrances. Similar obligations have been undertaken by the residents of houses No. 2 on Verkhne-Syromyatnicheskaya Street, No. 9 on Kachalinskaya Street, No 11/2 on Chkalov Street, No 4 on Rabochaya Street and so forth.

It bears mentioning that there have been instances in the past when the population has provided public preservation for its homes. Many such examples could be cited. However, the initiative displayed by the residents of an entire group of homes, on the scale of a rayon -- is considered to be exceptional and at the same time quite proper. This reciprocal concern on the part of these residents of Moscow came about owing to the manner in which the capital's housing resources developed and also as a result of implementation of the program aimed at providing each family with a well-arranged apartment.

"Up until now" stated the General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet, Comrade L.I. Brezhnev, during a meeting with voters from the Baumanskiy election district in Moscow, "no country in the world has been able to solve this task. Yet we accepted it and we will solve it." As emphasized once again during the

25th CPSU Congress, the principal concern of the party is that of raising the standard of living of the people. Moreover, special attention is being given to solving the housing problem. This year there are 130 million square meters of usable space and the balance value of the housing resources reached 15.5 billion rubles. Radical changes took place in the level of engineering equipage. Almost all homes are equipped with gas, water supply, central heating, hot water and so forth. The housing economy has been transformed into the city's largest branch.

Much is being accomplished in the housing economy in connection with improving services for the population and providing greater living comfort. On the 4th of September of last year, the USSR Council of Ministers adopted the decree "Measures for Further Improving the Operation and Repair of Housing Resources." This most important document provided the foundation for the plan for scheduled and long range measures, developed by Glavmoszhilupravleniye. In conformity with this plan, 300 million rubles were appropriated during this current year alone for carrying out repairs on the housing resources. During the January - September period, these funds were used for carrying out repair work, in accordance with the PPR [scheduled preventive maintenance] system, on 2.1 million square meters of living space, 5.2 million square meters of facades and 257.9 kilometers of heating networks.

An important component part of the task of transforming Moscow into a model communist city is the consistent implementation of civic improvements in the microregions. This will create the best conditions for the labor, daily routine and recreation of Moscow residents. Civic improvements are being implemented in a rhythmic manner and on a high quality basis in housing areas located in Zhdanovskiy, Krasnopresnenskiy and Voroshilovskiy rayons, in Zelenograd and so forth. Since the beginning of the year, complex civic improvements have been carried out on tens of streets and in 810 yards and work continues on the creation of 42 standard microregions. However, substantial shortcomings are still being noted in the organization and carrying out of these measures, as pointed out by the lessons learned last winter.

The branch's workers are presently engaged in solving mainly two tasks. These tasks derive from the need, first of all, for modernizing as quickly as possible those residential buildings preserved for the future, with the apartments being replanned and modern improvements introduced and, secondly, ensuring the preservation of post-war building structures having all types of civic improvements. This work can be carried out only if the capital and current repair work is organized in an efficient manner and if the quality and culture of production are raised. Obviously, the residents can accept for public preservation only those homes, the structures and systems of which function in a faultless and reliable manner.

Specifically, what is being done to improve the operation of the housing resources? The introduction of the PPR system is being expanded. The rates of growth in the volume of this work will make it possible, towards the end of the Eleventh Five-Year Plan, to ensure the repair of each home once every nine years. Thus the PPR must prevent the premature wearing out of structures and ensure a maximum degree of living comfort. Much is being accomplished in this regard. However, many unresolved problems still remain. We are not being properly supported by the contractors; they are not adhering to the schedules and quality required for the repair work. The work volumes for carrying out repairs on roofs and engineering systems are low. In order to eliminate the premature wearing out of dwellings and also the complaints of residents, the volume of repair work carried out on sanitary engineering installations should be increased threefold, on roofing -- twofold and on facades -- by 1.5 times. This is a priority condition for successfully solving the planned program.

A more complicated task is that of improving the organization of current repairs and the operation of buildings and the sanitary cleaning of dwellings. The difficulty lies in the fact that expenses for the technical operation of modern housing resources, with traditional methods being employed, increase on the order of 1.5-2 times. The extensive development of the housing economy, which took place up until recently, at which time the number of operational personnel grew proportional to an increase in the housing resources, led to a situation wherein the army of operational workers was greater in terms of numbers than the builders. Naturally, a systematic shortage of workers in the housing-operations organizations adversely affects the quality of maintenance of residential dwellings.

These questions are being resolved mainly on the basis of production specialization and concentration, improvements in the structure of control and mechanization and automation of operational processes. Everyone is aware that the present housing economy is unthinkable in the absence of such large associations, operating as a part of a main administrative board, as Moslift, Mosinzhremont, Moszhilpromkomplekt, trusts of Moszhilremstroy and Moszhilremont, a planning and scientific-research institute and an information-computer center.

In recent years the current repair of dwellings and their systems has been carried out on a contractual basis by the repair-construction administrations of RZhU [rayon housing administration]. The contractual method made it possible to carry out such repair work annually, in accordance with the PPR system and in a volume which exceeded 17 percent of the housing fund, thus conforming to the normatives. Complex economic accountability brigades are beginning to carry out this work in a number of rayons (Oktyabr'skiy, Leningradskiy, Babushkinskiy and others).

At the present time, each housing-operations office includes a group of machinists, electricians and other specialists, each one of whom is responsible for his own work. Even if he performs his work in the best possible way, it may not affect the overall course of the repair work or its tempo or quality. Attention was focused on this problem in some RSU's [repair and construction administration]: how should the work be organized so as to ensure that the entire group, working together, accelerates and improves the quality of the repair work and bears collective responsibility for the technical condition of the housing resources in the microregion? Thus the economic accountability complex brigades for carrying out current repairs on dwellings came into being.

By agreement with the brigade, the RSU furnishes it with technical documentation, plans and schedules, a wage fund and limits for labor and it is also obligated to supply materials in conformity with the schedule. Distinct from a conventional brigade, an economic accountability brigade receives bonuses from funds saved, but only if the quality of the work was good or outstanding or a reduction took place in the period of PPR work. And the advantages of economic accountability became apparent immediately. Indeed the interest of each individual in overall success being achieved serves to promote the development of comradely mutual assistance and joint control, solidarity within a collective and the birth of a conscientious communist attitude towards labor.

The extensive spread of the method of brigade economic accountability must lead to an increase in the level of technical housing operations. Moreover, the rapid introduction of this method into operations requires a change in the method for planning labor indices, with the quality of operations and not the work volume in rubles being employed as the determinant factor.

The decree of the CPSU Central Committee and the USSR Council of Ministers entitled "Improvements in Planning and Intensifying the Effect of the Economic Mechanism With Regard To Raising Production Efficiency and the Quality of Work" is directed precisely at solving these tasks.

It bears mentioning that there have been no incidents of untimely fulfillment of requests by the population in those areas where economic accountability brigades are in operation or where the work was organized in an efficient manner. Unfortunately, a great amount of criticism is still being received from residents concerning the delays which ensue before minor defects are finally corrected. As a rule, no complaints are being heard in those housing organizations where this schedule is being observed. However, there are also almost no requests for work owing to the possibility of defects appearing. Thus the population in such microregions, by way of displaying concern for themselves, provide active assistance to the housing-operations organization by participating in inspection measures and accepting responsibility for preserving their own dwellings and good order throughout the territory. The initiative displayed by the residents of Zhdanovskiy Rayon serves as clear proof of this fact.

Considerable importance is being attached to preventing the deterioration of homes and to correcting problems in the housing economy. Work is nearing completion on the creation of a dispatcher service responsible for ensuring the efficient carrying out of adjustment operations and unforeseen work and also work requests submitted by the population. At the present time, ODS's [joint dispatcher system] are servicing 650 microregions. As a result of their introduction, engineering systems are performing in a more reliable manner and the number of service personnel has decreased by roughly 12,000 persons or, in other words, the personnel shortage was eased somewhat. Even more important was the fact that success was achieved in raising the culture of services being made available for the population and in lowering expenditures for building operations.

The housing economy workers are undertaking measures aimed at raising the efficiency of the ODS's, strengthening the production base and making new equipment available; around-the-clock schedules are being established for operation of the equipment. At the present time, rayon dispatcher systems are being introduced into operations. With their introduction into operations, a single centralized service will be created for controlling the technical status of the housing resources. In the interest of improving the structure of control, an automatic system is being placed in operation for controlling the housing economy, the first phase of which has already been turned over for industrial operation.

An important aspect of our work involves the sanitary cleaning of homes and the tracts of land on which they are located. A considerable amount of work is also involved here. Mechanized cleaning offices are in operation in all of the city's rayons. These offices are making extensive use of cleaning machines produced by industry and also some developed and produced by services of the housing economy.

Nevertheless, not all of the problems have as yet been solved. Improvements in the methods for organizing the manual cleaning of sidewalks, considering the chronic shortage of yard-keepers and the unattractive nature of their profession, can certainly be viewed only as a half-measure. Modern specialized machines are required, particularly for cleaning the so-called 2-meter strips and gutters. We still have not created such machines, although we are working in this direction. Generally speaking, industry is giving no attention to this problem. True, the situation could be improved considerably if the economy was supplied with an adequate number of those items of equipment which are being produced serially. Neverhteless, the branch's workers are carrying out an entire complex of additional measures aimed at improving residential cleaning operations (from the editor -- see article by M.G. Grudkov entitled "Mechanization of Cleaning Operations," in Issue No. 8 for 1979).

The exterior appearance of housing developments is determined to a considerable degree by the intra-block green plantings. Unfortunately, no system is available for handling this important element of municipal civic improvements. It is our opinion that a need exists for creating rayon specialized services for carrying out landscaping work, with these services being provided with the required equipment.

As correctly pointed out in the decree of the Bureau of the CPSU MGK and the Executive Committee of Mossovet, the carrying out of a complex of work concerned with adding improvements to dwellings and adjoining territories is dependent to a considerable degree upon the work of independent social organizations and the population itself. Our traditional inspections of the technical situation and civic improvements have shown just how much can be accomplished if these forces are organized in a skilful manner.

The initiative displayed by the residents of Zhdanovskiy Rayon reveals that a more specific character should have been attached to the participation of society in the inspection measures and in the work of preserving dwellings. We are of the opinion that the population should have been broken down by professions in all of the microregions and a determination made for each family as to the possibility of its participation in improving its own block. In addition, the individual apartments should be assigned permanent sectors and definite volumes of work, measures should be developed and implemented for ensuring that society is supplied with materials and instruments, incentive payments should be issued to the more active repair workers and so forth. The decree of the Bureau of the CPSU MGK and the Executive Committee of Mossovet is directed towards achieving these goals.

Success in disseminating the initiative displayed by the residents of Zhdanovskiy Rayon is dependent to a considerable degree upon the manner in which educational work is carried out at a place of residence. This work takes various forms -- lectures and discussions, thematic evenings, yard and street holidays, oral journals, meetings with knowledgeable persons, clubs representing different interests and so forth. In particular, a great amount of importance is attached to exercises conducted for juveniles in societies and sport sections in a microregion -- this is an inalienable part of the initiative displayed by the residents of Zhdanovskiy Rayon.

At the present time, a requirement exists for increasing the amount of attention being given to the development of independent principles, to educational work carried out with the population, to stimulating the population into carrying out more complete improvements on their dwellings and to the socialist competition for exemplary maintenance of apartments and the entrances to homes. The leaders of the housing-operations and repair-construction organizations must concentrate the efforts of all of the services and society on improving the maintenance of dwellings and on implementing civic improvements throughout a territory. The book by L.I. Brezhnev entitled "Tselina" [Virgin Land] contains the following words: "Civic improvements -- represent an arrangement of blessings for people and concern for them. Not only is this always economic work, but in fact it involves politics primarily."

The initiative displayed by the residents of Zhdanovskiy Rayon, as pointed out in the mentioned decree, confronts us branch workers with a very important task -- creating the conditions required for increasing the contribution by each resident of Moscow towards improving the maintenance and good order of the housing fund, ensuring that the voluntary repair brigades are supplied with the necessary implements, instruments and materials, determining the work projects and volumes jointly with the public councils for homes and entrances and raising the level of services for the population. The housing economy workers and the most active members of society must study and disseminate to all areas the leading experience accumulated in organizing the competition for exemplary maintenance of and improvements to the housing fund and promote in every possible way a search for and the implementation of new and progressive forms for participation by Moscow residents in all measures associated with ensuring the preservation of dwellings -- a most valuable national property.

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7026
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

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IMPROVEMENTS IN ARCHITECTURAL APPEARANCE OF MOSCOW BUILDINGS DESCRIBED

Moscow GORODSKOYE KHOZYAYSTVO MOSKVY in Russian No 12, Dec 79 pp 31-32

[Article by Ya.V. Farfel': "A Facade -- The Face of a Building"]

[Text] The streets of a city can be viewed as chapters in a novel and its buildings -- as the pages in these chapters. It is good when each such page is read with interest and admired. But it often happens that they are dull and monotonous and accomplished in an indifferent and untidy manner.

As is well known, a house begins with a facade. We take pleasure in seeing bright and expressive facades. It is our wish that every building in Moscow be "read" in an enthusiastic manner and be worthy of its glorious and unusual city. How this can be done is conclusively revealed by an exhibit of Glavmospromstroymaterialy [Main Administration of the Building Materials and Structural Parts Industry of the Mosgorispolkom], which opened recently on Frunzenskaya Embankment in the joint "Construction" pavilions of the USSR VDNKh [Exhibition of Achievements of the National Economy of the USSR].

A great amount of work has been carried out in recent years in connection with improving the architectural expressiveness of completely prefabricated buildings in the capital. Together with the planners and builders, the industrial workers succeeded in diversifying their palette of resources, thus making it possible to provide exterior walls with a handsome and monumental appearance. In addition to the traditional coverings of ceramic or glass-mosaic wall panels, new methods appeared for finishing off exterior elements, utilizing the decorative properties of concrete embodied in the structures. At enterprises of Glavmospromstroymaterialy, the panels are made with handsome relief surfaces made out of white and grey concrete. Rather effective are those structures having exposed coarse aggregate and also a combination of relief or smooth surface having an exposed composition, included in a concrete of inert materials as, for example, granitic crushed stone.

Many handsome multi-story buildings have already been built in the capital. They have relief facades of white concrete, which revive the wonderful traditions of Moscow in terms of white stone. These include the Series P-68 apartment buildings in Tepliy Stan, an experimental apartment complex in Severnyy Chertanov, buildings of the MOSKOVSKAYA PRAVDA Publishing House, an ASU [automatic control system] for the 1980 Olympic Games and a number of others. The facades of buildings under construction for the Olympic Games hotel complex in Izmaylovo and for other series of apartment buildings will be just as impressive.

At the exhibit we take note of samples of very diverse panels and blocks having facades finished off in white concrete. Included among them are some which are in extensive use and others which are in a stage of experimental or industrial development. The principal supplier of this new production is the Beskudnikovskiy Combine No. 1 for construction materials and structures. A number of other enterprises are currently commencing the production of these products.

The development of white stone facing made out of concrete has an interesting history. Initially, decorative slabs of white concrete were delivered to the Beskudnikovskiy Combine from Plant No. 14 for Reinfoced Concrete Products. During the building-up process, these slabs were laid on the surface of conventional lightweight aggregate concrete panels. This technology turned out to be both cumbersome and expensive. Thereafter, the Beskudnikovskiy Combine workers decided not to place finished slabs on the surface of a panel, but rather a composition layer of white concrete and subsequently, with the aid of a matrix, to form a relief on it and thus obtain a surface similar to slab installation. The result exceeded expectations: the technology was simplified, the quality of the facial surface improved and the production cost for one square meter of facing decreased by twofold.

We admire the wonderful products displayed in the open exhibit area, products having a white concrete composition, and we are pleased by the photographs on display in the Glavmospromstroymaterialy Pavilion of unique buildings and entire apartment complexes, the facades of which beautify the appearance of Moscow. But in order to evaluate properly the contribution made by industry in the use of this new type of finishing-off for facades, one must be aware of the tremendous work which preceeded and which accompanies this work that is of such importance to our city. Workers attached to production plant groups, a scientific-research laboratory and a design-technological bureau of Glavmospromstroymaterialy participated on a creative collaboration basis in a complex of work associated with creating a conveyer line technology for production, equipment, new construction forms and in selecting the compositions for heavy white architectural concretes, having a filler of marble crumbs and simple lightweight aggregate concrete. Jointly with the architects and builders, determinations were made as to the optimum parameters and relief figures for the panels, the cross-sections for the bossages and the pitch between them and so forth.

In addition to the Beskudnikovskiy Combine, special technological lines were also produced at ZhBI [reinforced concrete products plant] No. 21 and at the Korenevo Plant for Construction Materials and Structures. Capabilities have already been created for producing a volume of up to 60,000 cubic meters of exterior wall panels having a relief in white concrete.

The task has been assigned of increasing their production by almost four times during the next few years. Moreover, a solution must be found for the "quality" problem -- the cement plants must produce cement having a gasoline content of 95-90 units instead of the present 71. The lines and departments for such panels must be isolated from the remaining ones and maintained under ideal conditions of cleanliness. Such complicated works and problems are concealed behind the facade of facade panels.

Expressive loge enclosures were on display at the exhibit, including panels involving the use of the same white concrete composition layer. The technology was developed by the Scientific-Research Laboratory for the Physical-Chemical Mechanics of Materials and Technological Processes, jointly with the Losinoostrovskiy Plant for Construction Materials and Structures. Owing to the use of effective matrices, which create a relief surface having various figures, products are obtained that are both handsome and of high quality -- no pores or spots. Such products are already being employed successfully in the erection of apartment buildings.

The exhibit also included panels for lodges and balconies made out of architectural concrete, with an exposed composition of stone and other materials and panels having handsome and weatherproof polymer cement facings. The NIL [Scientific Research Laboratory] of the Main Administrative Board, jointly with USSR Minkhimprom [Ministry of the Che Chemical Industry], created an anti-adhesion facing for metal forms in which architectural concrete products are produced. Such forms and also the high quality facade elements produced in them are to be seen at the exhibit.

The scientists and production workers of NIL and the Losinoostrovskiy Plant introduced improvements into the production of loge enclosures having ceramic facings. This made it possible to use new types of relief and multi-color ceramics, which create an attractive interplay of light and shadows on the screens of loges and balconies. It is believed that the extensive use of such products will promote improvements in the exterior appearance of loges and balconies on buildings under construction. It is unfortunate that as yet this important element of a facade more often than not appears as an untidy spot on many buildings, rather than as a decoration on the exterior portion of buildings.

Beyond any doubt, the attention of visitors to the exhibit will be drawn to the reinforced concrete panels having a stone-like composition, used in the construction of a complex of buildings at the Center for International Trade and Scientific-Technical Contacts With Foreign Countries. The exterior portion of the panels appears as a very effective "readable" and exposed layer of decorative coarse aggregate, with use being made for this purpose of grey granite crushed stone, fraction 10-15 mm, obtained from a quarry in the North Caucasus. The exposing of the granite layer is carried out using a chemical inhibitor for the setting of the cement and also by removing the weak solution portion of the concrete using special mechanical brushes.

A great amount of work has been carried out in connection with the creation of a technology and equipment for the mass production of these unique panels by the KTB [design and technological office] of Mosgorstroymaterialy by an SKTB [special design and technological office] and by Plant No. 11 for Reinforced Concrete Products. The work performed by these collectives was recognized with the issuing of a diploma at the "Koneko-78" International Exhibit at Bratislava and by the conferring of the state Badge of Quality upon the product.

The displays at the exhibit reveal that a substantial expansion has taken place in the variety of facade elements for buildings that are finished in ceramic. Indeed, it was not too long ago that industry was able to provide the architects with only an extremely limited selection of facade ceramics. This scanty selection resulted in a dismal monotony of facades for completely prefabricated buildings. The situation is quite different at the present time. A rich palette of ceramic facings is available. There are panels with ceramics in all colors of the rainbow and various figures, reliefs and dimensions. Nor do we have in mind here only exhibit models. If you visit Troparevo, Yasenevo, Teplyy Stan and other new regions of the city, you will see not only attractive individual buildings but also expertly finished entire housing developments.

Deserving of special mention at this point is the Dedovsk Ceramics Plant, where the production of facade ceramics has been converted over completely to an industrial basis. The obsolete forges and tunnel furnaces have been replaced here by modern high-speed conveyer lines on which all operations have been mechanized and automated. This year the production of facade tiles has been increased to 230,000 square meters (two years ago the figure was only 38,000 square meters). Today there are many tens of different types of tiles, instead of just 5-6 as was formerly the case.

A large section of the exhibit is occupied by prefabricated elements for the exterior walls of unique buildings; they are finished off in marble, travertine, dolomite or other valuable stone materials. It is pleasing to note the degree of care that goes into the finishing off of the surfaces, the preparation of the bossages in the reliefs and the installation of the ceramics, glass-mosaics and natural stone slabs. All of the new types of products have excellent facial surfaces and minimal geometric tolerances.

It is obvious that the industrial workers are concerned with the manner in which the products they produce are installed in the facades of buildings by the builders. The plant workers zealously monitor the panel installation work, particularly the filling in of the seams between panels and at those points where window and exterior door units adjoin panels. It is their wish that the panels do not lose their marketable appearance during the course of installation. Unfortunately, this happens quite often: the plant panel is in excellent condition and yet it is installed on a building with gaping cracks and the solution and bitumen are applied in a very poor manner. Yes the seams are caulked in such an untidy manner that it is even unpleasant to just glance at the facade.

Certainly, the cleanliness of such work is largely dependent upon the installation workers. Thus, for the purpose of aiding them in their work of caulking the seams, the plant workers created new types of handsome and reliable hermetic sealants, types which can be employed on facades without leaving 'spots.' These hermetic sealants are displayed in the new Glavmospromstroymaterialy Pavilion together with excellent window and exterior entrance door units and also many other products intended for use in improving the architectural appearance of buildings.

It is appropriate to mention that the exhibit pavilion itself was constructed using new and efficient facade panels and that the territory surrounding it was laid out using paving elements of various shapes, which were also mastered only recently by enterprises of Glavmospromstroymaterialy using the NIL technology. Thus the exhibit buildings, installations and territory, together with the wonderful displays gathered here, have become a type of standard for the manner in which the facades of buildings should be finished off and the territories around them organized in the proper manner. This standard is now in operation. It has been repeated and not on just one occasion; it has been employed in many unique buildings, on olympic construction projects and in new housing regions in Moscow. The architects and builders will use it as their basis for designing the appearance of tomorrow's new construction projects in our beautiful city.

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7026
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

STIMULATING HIGH QUALITY THROUGH BONUSES

Moscow EKONOMICHESKAYA GAZETA in Russian No 48, Nov 79 p 7

[Letter of USSR Gosplan, USSR State Committee for Labor and Social Problems, USSR Ministry of Finance and AUCCTU dated 20 August 1979: "On Procedure for Crediting Economic Incentive Funds, Awarding Bonuses to Workers and Totaling the Results of Socialist Competition for Certain Enterprises and Associations Which Have Limited Opportunities for Above-Plan Output of Products in the Superior-Quality Category"]

[Text] Under present procedure, the document states, actual fulfillment of the plan for the relative share of products in the superior-quality category in the total volume of output is calculated as the ratio of products in the superior-quality category actually produced to the actual total volume of commodity output. This encourages enterprise efforts to overfulfill assignments for output by concentrating on manufacture of products in the superior-quality category. At the same time there are certain cases when associations and enterprises do not have an opportunity for objective reasons to overfulfill assignments for production of products in the superior-quality category, even though the output plan as a whole is overfulfilled on the basis of products in the first-quality category or products in demand which are not subject to certification. This results in nonfulfillment of assignments for the relative share of products in the superior-quality category in the total volume of output, which results in a reduction of incentive funds and loss of the right to bonuses for the principal results of economic activity.

In response to requests that have been submitted USSR Gosplan, USSR State Committee for Labor and Social Problems, USSR Ministry of Finance and the AUCCTU, in agreement with the USSR Central Statistical Administration, explained that in cases when the association or enterprise overfulfills the plan for the total volume of output by virtue of products in the first-quality category or products not subject to certification which are in demand, when, moreover, for objective reasons it has limited possibilities of above-plan output of products in the superior-quality category sufficient to fulfill the plan assignment for the relative share of these products in the total volume of production, USSR ministries and departments and councils of ministers of union republics, by agreement with the respective trade union organizations, may allow these associations and enterprises to credit economic incentive funds and to award bonuses to workers according to the procedure envisaged for enterprises and associations which fulfill these assignments and to follow the same procedure in evaluating the results of the activity of these associations and enterprises in totaling up the results of socialist competition.

Fulfillment and overfulfillment of plan assignments for the output of products in the superior-quality category is a mandatory condition for adoption of these decisions. When the plan is overfulfilled with products in the second-quality category or products subject to certification but not submitted for certification, this procedure is not applicable.

These decisions are taken by USSR ministries and departments in agreement with central trade union committees with respect to associations and enterprises which are part of all-union and union-republic industrial ministries and departments and by councils of ministers of union republics in agreement with the republic trade union councils with respect to associations and enterprises which are part of republic and nonindustrial union-republic ministries and departments of the union republics.

Adoption of these decisions extends to the relevant associations and enterprises the following rights if they fulfill or overfulfill their plan assignments for output of products in the superior-quality category:

i. not to reduce the size of economic incentive funds for nonfulfillment of plan assignments for the relative share of products in the superior-quality category in the total volume of output;

ii. to increase the size of incentive funds for overfulfillment of plans for the total volume of output;

iii. to award bonuses to supervisory and engineering and technical personnel and employees for the principal results of economic activity, if fulfillment of the assignment for the relative share of products in the superior-quality category in the total volume of production is a principal indicator used in the awarding of bonuses.

Since overfulfillment of the plan for the total volume of production should as a rule be achieved by overfulfilling the plan for output of products in the superior-quality category, the decisions envisaged by this letter may be taken by USSR ministries and departments and councils of ministers of union republics in agreement with the respective trade union bodies only in exceptional cases.

7045
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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

GREATER USE OF MONOLITHIC HOUSING CONSTRUCTION IN UKRAINE URGED

Kiev STROITEL'STVO I ARKHITEKTURA in Russian No 8, 1979 pp 12-16

[Article by Candidate of Architecture Yu. G. Repin: "For Higher Quality Architecture"]

[Text] Our country has made intense searches recently for ways to further improve the architecture of large-scale construction development. The architectural ensembles of Lazdinay in Vil'nyus, the center of Sochi, the Vostok-1 and Vostok-2 blocks in Minsk, Prospekt Mira in Kishinev, a new buildup in Yerevan, the city of Tol'yatti and certain others testify to definite successes on the part of our architects and builders. This has been achieved thanks to the creative use and application of various styles of housing construction, including monolithic reinforced-concrete construction.

However, it should be noted that the architects and builders of the Ukrainian SSR are greatly in arrears to the republic, since no memorable architectural ensembles of any kind have been created in the Ukraine in recent years. This is especially true of Kiev, where more than half of the republic's architects work.

Positive results in solving the multiple-plan tasks of raising the architectural quality of a buildup can be achieved only with a systems approach. In order to gain success in the large-scale construction of housing, it is necessary to observe a balance of architectural, design and technological factors. In order to create various dominant urban-development motifs, architectural factors are the main thing, and design and technological considerations are secondary, or subordinate. However, in any case, design and technological factors superimpose a definite impression on the formulation of the architectural model for a buildup. Because of this, it is necessary to point directly to the fact that monolithic and prefabricated monolithic housing construction possesses an incomparably greater reserve in modes for architectural compositional expressiveness than large-panel housing construction.

Monolithic housing construction is an effective means for solving diverse architectural problems. Its main distinctive characteristic in comparison with fully prefabricated construction is large variety, which is expressed in the potential for change in three-dimensional layout solutions and also in composition of the facades.

These well-known principles, unfortunately, are not used adequately in the Ukrainian SSR's construction practice. Of all the housing built of monelithic concrete in the country as a whole during 1968-1978 (about 700,000 square meters of total space), only 75,000 square meters of it were built in the Ukraine, although the natural and climatic conditions here are more favorable for doing this type of building. It must also be kept in mind that Odesskaya, Zakarpatskaya, Chernovitskaya and Krymskaya oblasts are characterized by a seismicity of force 7-8, where large-panel construction is uneconomical and brick construction higher than 7 stories is prohibited altogether.

The necessity for increasing the amount of monolithic housing construction in seismic regions has been pointed out in a number of existing documents, which proposed that UkSSR Gosstroy, UkSSR Gosplan, the construction ministries and Glavkievgorstroy [Main Administration for Construction in the City of Kiev], working with the appropriate scientific-research and design organizations, examine in 1976-1977 the possibility of increasing the construction of housing and public buildings, using monolithic reinforced concrete, three-dimensionally adjustable formwork and slipforms, in the republic's seismic regions and in Kiev.

As was noted in the decisions of the All-Union Conference on Monolithic Housing Construction in Kishinev (October 1978), this type of housing construction has already passed the experimental stage and it should be used in the USSR not only (and not so much) for the erection of various individual structures but also for buildings of large ensembles of high architectural quality. Moreover, the conference devoted attention to the desirability and effectiveness of introducing monolithic housing construction for rural areas, which can speed up fulfillment of the decisions of the July 1978 CPSU Central Committee Plenum.

It must be noted that the Ukraine's architects and builders were pioneers in mastering progressive types of monolithic housing construction. After the Sochi (1966) and Tula (1967) experiments, monolithic housing was built in Donetsk, Yalta, Odessa, Vinnitsa and Dnepropetrovsk. However, for a number of reasons, the construction of monolithic reinforced concrete later practically ceased in the Ukraine, and Kishinev, Alma-Ata, Yerevan and Roston-on-the-Don captured the palm for first place.

A deficiency of monolithic housing construction, in comparison with the fully prefabricated type, is the low quality of the facing surface of structure that is erected in slipforms. This is caused not only by organizational and technological factors (the misalignment of the forms, irregularity in feeding the concrete, its stiffness, and so on) but also the nonobservance of certain architectural-layout rules during development of the designs, particularly:

noncorrespondence of dimensions of the floor plan to the peculiarities of organization of the flow-line operating group;

the large number of openings in the walls being concreted, transforming them into a concealed framework; and

the presence of a large number of sharp angles.

A deep analysis of the causes of the successes and of the inadequacies of this type of housing construction is required. However, primarily a brief survey should be made of domestic and foreign experience, to establish the architectural-composition and construction-operation characteristics of its various types, and also to determine the more likely regions for construction thereof in the UkSSR and the approximate amounts thereof during the forthcoming five-year period.

In many foreign countries, primarily in socialist countries, a large growth in the amount of monolithic and prefabricated-monolithic housing construction is noted (see the table).

Specific Amounts of Monolithic and Prefabricated Monolithic Housing Construction in CEMA Countries (in percents)

Socialist countries	1975	1980
People's Republic of Bulgaria	44	33
Hungarian People's Republic	12	16
Polish People's Republic	3	16
Socialist Republic of Rumania	50	47

In capitalist countries of Western Europe (especially in the FRG, France and others) monolithic housing construction is displacing prefabricated-construction technology systems because of its architectural and technological flexibility. A number of original formwork systems and urban-development ensembles have been created, among which the Olympic Village in Munich, a 30-story apartment house in Grenoble, a 46-story apartment house in Cologne, and such substantial structures in Paris as the Defans [transliterated] block ("living rods") of architect E. Ayo [transliterated] and others, can be noted.

Constructional-technological factors exert a considerable influence on forming the architectural solution of a building. Great diversity in design and layout solutions, construction materials, parts, technological methods for erecting buildings, and methods for manufacturing parts and for assembling them are characteristic of modern housing construction. Architecture and structure depend naturally upon operating methods and upon the current status of construction equipment.

Monolithic housing construction with slipforms has definite limitations but it is desirable for point-type housing 16 stories or higher, which corresponds most closely to the characteristics of the erecting technology.

Monolithic housing construction with the use of three-dimensional adjustable formwork has practically no restrictions on the number of stories or on construction conditions. At the same time, it is less characteristic for point-type buildings than for plate-type apartment houses, which is explained by the better conditions for organizing the flow-line operation group for erecting buildings of this type.

Large-panel formwork, which enables both point-type and elongated apartment houses to be erected, possesses great flexibility in choice of three-dimensional layout solutions.

What has been said confirms that monolithic housing construction can be classified according to the chief technological feature (the type of concreting formwork).

It is apparent from the cited classification that the types of apartment houses cited in the first to fourth groups are "purely" monolithic. Combined fully-prefabricated monolithic construction-technology systems (the fifth group) are extremely promising, since they combine the plastic advantages of monolithic buildings and high quality of surface finish of prefabricated parts.

The three-dimensional spatial composition of a housing development is formed by the housing buildings and by the open spaces. The primary layout element of housing--the apartment and its components (the dwelling rooms, the auxiliary premises and the outside premises) have been formed into a definite functional structure during the past decade, and in the foreseeable future they will remain unchanged. At the same time, evolution of the residential buildup has been occurring at a more accelerated pace recently, passing through several qualitative stages: the apartment, the housing group, the microrayon and the housing rayon.

The availability of a large number of series of standard apartment-house designs (in comparison with 1960-1970), the three-dimensional spatial expression thereof in the form of the parallelopiped, plates, or a rectangular point element, the development of new series of standard designs based upon the block-sectional method of design, the inclusion within the products line of block sections and apartment houses of rotary and angular elements in the form of a cross, a trefoil or a nonrectangular element, have not dispelled the problem of monotony of housing developments.

One of the main elements of the visual characteristics of a buildup is its silhouette. A leveling of a development in number of stories and maximum simplicity of form of various high, dominant features is the main cause of monotony. This question is the main one for the large-scale buildup of the near future, since, with the need for compactness, a trend toward mechanically raising the number of stories (first the 5-story building, then one of 9 stories, and later buildings of 12-16 stories) without changing the three-dimensional spatial composition of the apartment house has been noted.

The emergence of urban-development trends can be traced in certain examples of monolithic housing construction. Most of the well-appointed buildings made of monolithic reinforced concrete carry the load in organizing the silhouette of the development. However, there are cases where, with the participation of monolithic apartment houses, an unexpressive buildup is formed. Let us examine four urban-development situations.

1. Selective "piece-by-piece" construction is accomplished in an existing buildup with monolithic apartment houses. The apartment houses, which are erected with the use of slipforms, play the role of high-rise accents among the surrounding 4- and 5-story standard buildup. The construction of 16-story apartment houses made of monolithic concrete in Tula, Fryazino, Vinnitsa, Odessa, and Rostov-on-the Don can serve as examples.

In foreign practice, free-standing apartment houses made of monolithic concrete are allocated a somewhat greater urban-development role. Thus, the purpose of creating an expressive silhouette for the city's center was followed in building a tall laboratory building for the university in Leipzig (GDR).

2. The compositional center of a buildup is formed by a group of monolithic apartment houses. This also is a fairly widely distributed method in domestic and foreign urban-development practice.

Three 16-story apartment houses were built in Donetsk which organized in an original three-dimensional manner the spatial composition of a housing microrayon by the Kal'mius river. The construction of three apartment houses in L'vov is being executed.

The organization of the Pobeda Square ensemble in Leningrad with an eye to urban development is of great interest. Here two 22-story apartment houses made of monolithic concrete appear to be starting a large city highway and simultaneously they enter into the compositional center of the square--a memorial to the heroic defenders of Leningrad.

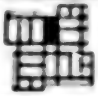
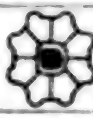
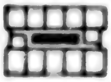
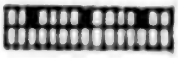
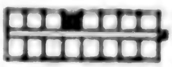
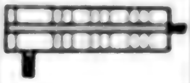
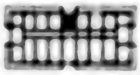
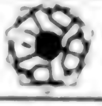
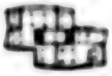
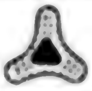
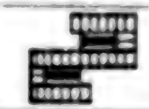
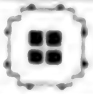
3. A housing tract is built up with houses made of monolithic concrete. This is the more characteristic case for foreign practice in monolithic housing construction. A complex made up of nineteen 16-story apartment houses that was built in Saska Os' Rayon in Warsaw, as well as the Kempa Pototski (Poland) housing district and Park Floryaska and Redzhiye-II blocks in Bucharest (Romania) can serve as examples of a standard buildup.

4. A large urban-development ensemble, whose creation by other means is practically impossible, is shaped from monolithic concrete.

The impossibility of using other methods and resources is occasioned by the complexity of providing the complex with spatial rigidity and stability or the complexity of its three-dimensional spatial composition. The first circumstance predetermined that the new development of the Sochi health-resort be made of monolithic concrete, since the territory is situated in a seismic (force 8) zone.

Consolidated Classification of Monolithic Reinforced-Concrete Housing Buildings, According to the Builder's Methodology

(1--bathroom, 2--parlor, 3--general room, 4--dining room, 5--kitchen)

[illegible] (0)		Конструктивные решения (A)	Эскиз (B)	Характерный пример (C)	Технологическое описание (D)
(1) Группа I	11	С поперечными и продольными внутренними и наружными несущими стенами из монолитного железобетона Перекрытия монолитные		16-этажные жилые дома в Туле, Фрязино, Донецке, Томске, Минске и др. (a)	Точечные односекционные жилые дома
				Проект 22-28-этажного жилого дома для Киева (b)	
	12	С поперечными и внутренними продольными несущими стенами из монолитного железобетона		16-этажный жилой дом в [illegible]	Точечные или двухсекционные жилые дома
(2) Группа II	21	С поперечными несущими стенами в виде: - частого "тоннеля" - с одной внутренней продольной стеной - с двумя внутренними продольными стенами Наружные стены - из сборных элементов или мелкоштучные		(a) 9-этажный 140-квартирный жилой дом в Кишиневе	(a) Протяженные многосекционные жилые структуры коридорного типа любой этажности
				(b) 22-этажный жилой дом в Ленинграде	(b) Протяженные коридорные жилые структуры любой этажности
	22	С продольными несущими стенами Внутренние поперечные - из сборных элементов или мелкоштучные		Опалубочное оборудование системы [illegible] (Франция)	Протяженные коридорные жилые структуры
(3) Группа III	31	То же, что 21		47-этажный жилой дом в [illegible] (ФРГ)	То же, что 21
	32	С поперечными и продольными внутренними и наружными несущими стенами Перекрытия как сборные, так и монолитные		9-этажные жилые дома в [illegible] (ФРГ)	Любое типологическое решение
(4) Группа IV	41	Любое из вышеприведенных	—		Любое типологическое решение 1 Данный тип опалубки в большинстве случаев [illegible] 2 [illegible]
	42	Каркасное с диафрагмами жесткости		46-этажный жилой дом в Париже (Франция)	
(5) Группа V	51	Каркасно-ствольное		70-этажный жилой дом в Чикаго (США)	Как правило, точечные высотные структуры 1 Данные конструктивные схемы применяются для высотных жилых домов 2 Ствол, как правило, выполняется в скользящей опалубке 3 Все остальные элементы могут быть как в сборном, так и в монолитном конструкции
	52	Ствольно-стеновое		16-этажный жилой дом в Кишиневе	
	53	Ствольное с подвешенными этажами		31-этажное админздание	

[Key starts on next page]

Key:

0. Grouping according to leading operating method.

1. Group 1. With the use of slipforms.
2. Group 2. With the use of three-dimensional adjustable forms.
3. Group 3. The large-panel form.
4. Group 4. The small-panel form.
5. Group 5. Combined.

A. Constructional solution.
A-1.1. With lateral and longitudinal interior and exterior load-bearing walls made of monolithic reinforced concrete.
Monolithic ceiling floors.
A-1.2. With lateral and internal longitudinal walls made of monolithic reinforced concrete.
A-2.1. With lateral load-bearing walls in the form of:
- a "pure" tunnel;
- with one internal longitudinal wall;
- with two internal longitudinal walls; or
- outer walls made of prefabricated members or of small-piece units.

A-2.2. With longitudinal load-bearing walls.
Internal lateral walls made of prefabricated members or of small-piece units.
A-3.1. The same as 2.1.
A-3.2. With lateral and longitudinal interior and exterior load-bearing walls.
Ceiling floors are both prefabricated and monolithic.
A-4.1. Any of the above-mentioned.
A-4.2. Framework with stiffening diaphragms.
A-5.1. Framework-pillar.
A-5.2. Pillar-wall.
A-5.3. Pillar with suspended floors

B. Rough sketch.

C. Typical examples.
C-1.1a. 16-story apartment houses in Tula, Fryazino, Donetsk, Yalta, Minsk and other cities.
C-1.1b. The design of 22-28 story apartment houses for Kiev.
C-1.2. 18-story apartment house in Katowice.
C-2.1a. 9-story 140-unit apartment house in Kishinev.
C-2.1b. 22-story apartment house in Leningrad.
C-2.2. The GLD (French) formwork-equipment system.
C-3.1. 47-story apartment house in Cologne (FRG).
C-3.2. 9-story apartment house in Lara [transliterated] (FRG).
C-4-1. [Blank]
C-4.2. 46-story apartment house in Paris (France).
C-5.1. 70-story apartment house in Chicago, USA.
C-5.2. 16-story apartment house in Kishinev.

[illegible].3. 31-story administration building.

D. Technological description.

D-1.1. Point-type one-section apartment house.

D-1.2. Point-type one- or two-section apartment houses.

D-2.1a. Lengthwise multisection apartment-type housing structure of any number of stories.

D-2.1b. Lengthwise corridor-type housing structures of any number of stories.

D-2.2. Lengthwise corridor-type housing structure.

D-3.1. The same as [D-]2.1.

D-3.2. Any typological solution.

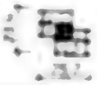
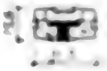
D-4. Any typological solution.

1. The type of formwork given is in most cases additional to other types of shaping equipment.
2. Self-sufficient use thereof is chacteristic for nonstandard buildings of complex configuration.

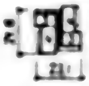
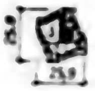
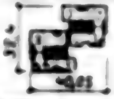
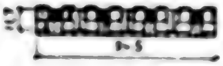
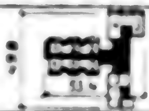
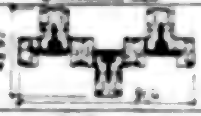
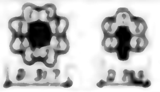
D-5. As a rule, point-type high rises.

1. The given constructional schemes are used for high-rise apartment houses.
2. The column is, as a rule, made with a slipform.
3. All remaining elements can be either prefabricated or monolithic structure.

Typical Solutions for Buildings Made of Monolithic Reinforced Concrete with the Use of Various Types of Formwork (Based on Domestic Experience)

(O) № п/п	(A) [illegible]	(B) [illegible]	(C) Эскиз	(D) Тип здания	(E) [illegible]			(I) [illegible]
					(F)	(G)	(H)	
1	[illegible]	[illegible]		[illegible]	16/28	140	4170	[illegible]
2	[illegible]	[illegible]		[illegible]	16/28	52	2447	[illegible]
3	[illegible]	[illegible]		[illegible]	16/27	126	3625	[illegible]
4	[illegible]	[illegible]		[illegible]	16/28	80	3415	[illegible]

(Table continued on next page)

(0)	(A)	(B)	(C)	(D)	(E)			(I)
					(F)	(G)	(H)	
5	Экспериментальный жилой дом в Ялте ЭСО-1С	КиевЗНИИЭП		Скользящая	$\frac{16}{2,7}$	64	2953	Сейсмичность 8 баллов Повторено 3 раза
6	Экспериментальный жилой дом в Минске Э-187	ЦНИИЭП жилища		Скользящая	$\frac{16}{2,8}$	64	2680	Обычные условия Повторено в Москве
7	Жилые дома в Кишиневе	Молдгипрострой		Объемно-переставная (a)	$\frac{13}{2,6}$	129	4016	Сейсмичность 7 баллов
				В скользящей - лестнично-лифтовой узел (b)	$\frac{16}{2,8}$	159	[illegible]953	
8	Жилой дом для малосемейных в Ленинграде	Ленпроект		Объемно-переставная	$\frac{22}{-}$	315	5600	Обычные условия Первый этаж нежилой
9	Жилой дом в Ужгороде	КиевЗНИИЭП		Крупнощитовая	$\frac{9}{2,8}$	144	4800	Сейсмичность 8 баллов
10	Жилой дом в Набережных Челнах	ЦНИИЭП жилища		Объемно-переставная	$\frac{25}{2,8}$	73	9180	
11	Экспериментальный жилой дом для г. Ялты (вариант для Ростова-на-Дону)	КиевЗНИИЭП		Объемно-переставная	$\frac{9}{2,8}$	180	5602	Для Ялты сейсмичность 8 баллов Для Ростова - обычные условия
12	Варианты решения жилых домов в ЭЖР "Комсомольский" в Киеве	КиевЗНИИЭП		Скользящая	$\frac{25}{2,8}$	184 115	5860 3570	Первые 2 этажа нежилые

Key:

0. Sequence number.

A. Designation of building and place of construction.
A-1. Apartment house in Sochi.
A-2. Apartment house in Tula.
A-3. Apartment house in Fryazino (Moscow Oblast).
A-4. Apartment house in Donetsk.
A-5. Experimental apartment house in Yalta ESO-1S.
A-6. Experimental apartment house in Minsk E-187.
A-7. Apartment house in Kishinev.
A-8. Apartment house for small families, in Leningrad.
A-9. Apartment house in Uzhgorod.
A-10. Apartment house in Naberezhnyye Chelny.
A-11. Experimental apartment house for Yalta (variant for Rostov-on-the-Don).
A-12. Variants of solution of apartment houses in "Komsomol'skiy" EZhR (experimental housing rayon) in Kiev.

B. Design organization.

B-1. Studio imeni Akademik Vesnin, TsNIIOMTP [Central Scientific-Research and Experimental Design Institute for the Organization, Mechanization and Technical Aids for Construction].

B-2, B-6, B-10. TsNIIEP zhilishcha [Central Scientific-Research and Design Institute for Standard and Experimental Design of Housing].

B-3. Mosgrazhdanproyekt [Moscow Institute for the Design of Housing and Public Buildings].

B-4. DonetskproyektNIISP [Scientific-Research Institute of the Construction Industry for the Design of Housing and Public Building Construction in Donetsk] of UkSSR Gosstroy.

B-5, B-9, B-11, B-12. KievZNIIEP [Kiev Zonal Scientific-Research and Design Institute for Standard Experimental Design of Housing and Public Buildings].

B-7. MoldGIProstroy [Moldavian SSR State Design Institute for Construction].

B-8. Lenproyekt [Institute for the Design of Housing and Public-Building Construction in Leningrad].

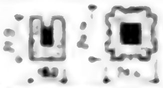
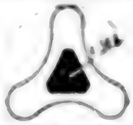
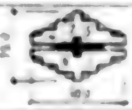
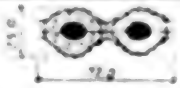
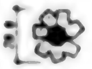
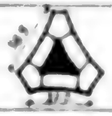
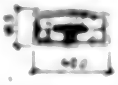
C. Rough sketch.

D. Type of formwork.
D-1, D-2, D-3, D-4, D-5, D-6, D-12. Slipform.
D-7a, D-8, D-10, D-11. Three-dimensional, adjustable form.
D-7b. Slipform for staircase-elevator unit.
D-9. Large-panel form.

E. Basic indicators for the apartment house.
F. Number of stories and height per story.
G. Number of apartments.
H. Living space, square meters.

I. Specifications for construction.
Comments.
I-1. Seismicity of force 8. Repeated 5 times.
I-2. Ordinary specifications. The first story is partly nonresidential. Repeated in Rostov.
I-3. Ordinary specifications. The building is divided into two increments. Repeated in Dnepropetrovsk.
I-4. Mining workings. Repeated 3 times.
I-5. Seismicity of force 8. Repeated 3 times.
I-6. Ordinary specifications. Repeated in Moscow.
I-7. Seismicity of force 7.
I-8. Ordinary specifications. First story is nonresidential.
I-9. Seismicity of force 8.
I-10. [Blank]
I-11. For Yalta--seismicity of force 8. For [illegible]--ordinary specifications.
I-12. The first 2 stories are nonresidential.

Typical Solutions for Buildings Made of Monolithic Reinforced Concrete with the Use of Various Types of Formwork (from Foreign Experience)

(0) [illegible]	(A) Наименование здания и место строительства	(B) Время строительства	(C) Эскиз	(D) Тип опалубки	(E) Основные данные по жилому дому			(I) Примечание
					Этажность, высота, м	Количество квартир	Жилая площадь, м²	
					(F)	(G)	(H)	
1	Венгрия Жилые дома микрорайонов Будафок и Келенфельд в Будапеште	1966 1967		Скользящая	12- 16	55 112	3390	Первые этажи нежилые
2	Польша Жилой дом в районе [illegible] в Варшаве	1964		Объемно-переставная типа „столов"	16	420	-	Первый этаж нежилой
3	Польша Жилой дом в Варшаве ([illegible])	1965		Скользящая опалубка внутренних стен	19	175	4580	Первый этаж нежилой
4	США Жилой дом „Лейк Пойнт Тауэр" в Чикаго	1967		Ствол - в скользящей опалубке, каркас - в щитовой	70/195			Каркасно-ствольная схема
5	Болгария Жилой дом в микрорайоне Иван Вазов в Софии	1966		Скользящая	16	60		Первый этаж нежилой
6	Франция Жилой дом в Гренобле	1964 1965		Переставная крупнощитовая	30/100	168	-	Первый и последний этажи нежилые
7	Франция Спортивный жилой дом „Ле [illegible]" в [illegible]	1971		Переставная щитовая	35/96	480	17500	Каркасно-ствольная схема с диафрагмами жесткости
8	Англия Жилой дом в [illegible]	1971			30	196		В 1-9 этажах - однокомнатные, в 11-29 этажах двухкомнатные квартиры
9	ГДР Высотный корпус университета им. Карла Маркса в Лейпциге	1972		Скользящая	36/142			
10	ФРГ Жилой дом в Людвигсхафене	1967		Крупнощитовая	22	100	-	

Key:

0. Type Nos.

A. Identification of building and place of construction.

A-1. Hungary. Apartment houses of Budafok and Kelenfeld microrayons in Budapest.

A-2. Poland. Apartment house in Saska Os' Rayon in Warsaw.
A-3. Poland. Apartment house in Warsaw (variant in Katowice).
A-4. USA. The Lake Point Tower apartment house in Chicago.
A-5. Bulgaria. Apartment house in Ivan Vazov microrayon in Sofia.
A-6. France. Apartment house in Grenoble.
A-7. France. Le Orison paired apartment house in Rennes.
A-8. England. Apartment house in Chikem [transliterated].
A-9. GDR. High-rise building of Karl Marx University in Leipzig.
A-10. FRG. Apartment house in Ludwigshafen.

B. Time of construction.
C. Rough sketch.
D. Type of formwork.
E. Basic indicators for the apartment house.
F. Number of stories and height of the apartment house, in meters.
G. Number of apartments.
H. Living space, square meters.

I. Comments.
I-1, I-2, I-3, I-5. The first floors are residential.
I-4. Framework and column scheme.
I-6. The first and next floor are nonresidential.
I-7. Frame and column scheme with stiffening diaphragms.
I-8. 1-room apartments on the 1st-9th floors, 2-room apartments on the 11th-29th floors.
I-9, I-10. [Blank]

In designing the Teatral'nyy Spusk housing complex in Rostov-on-the-Don, the designers' collectives of KievZNIIEP [Kiev Zonal Scientific-Research and Design Institute for Standard and Experimental Design of Housing and Public Buildings] made an attempt at an optimal solution of a complicated urban-development task by means of monolithic housing construction. The complex was located in the center of the city between Prospekt Engel's and the river shore of the Don, along an axis of the theater building for opera and ballet. The land section has a substantial slope in the direction of the shore.

The complex is a three-dimensional spatial structure of a varying number of stories (12 to 18) that is complicated in plan--continuous from the left of the axis and discontinuous (made up of 3 groups) from the right. This facility is already being constructed, using a three-dimensional tunnel-type adjustable formwork.

With the development of designs for the layout and the buildup, the choice of type and use of monolithic apartment houses is justified not just by urban-development requirements but also by the status of the construction-industry base in the specific area. In large cities of the Ukraine (Kiev, Khar'kov, Dnepropetrovsk, Zaporozh'ye and Odessa), where there are high-capacity large-panel housing construction bases, monolithic construction will supplement it and should be used only for the construction of special types of apartment houses or of large urban-development ensembles.

Several other tasks are being solved for cities in which there are no KPD [large-panel housing-construction] enterprises. Monolithic apartment houses of various architectural-compositional solutions can be built in these cities.

Monolithic housing construction that uses industrialized types of formwork can have both a general solution, which characterizes the housing in general, and, simultaneously, a specific solution, which is inherent in the given method of construction.

Unlike large-panel housing construction (and in most cases of brick), apartment houses made of monolithic reinforced concrete can obtain a more pliable three-dimensional spatial structure not only through irregularity of the floor design but also through a height differential of the units. Such a compositional method is difficult for large-panel housing construction where the joints of the terrace are to be protected against water and the number of standard sizes of construction items is increased.

Questions of tectonics are closely linked with questions of pliability, which, in turn, are inseparable from the overall problem of moldability, which, for monolithic housing construction, becomes paramount.

The compositional methods that are typical for structures erected by any other method are inherent in apartment buildings made of monolithic reinforced concrete. However, the tectonic structure of such buildings has its peculiarities, which are associated with the plastic properties and potential for shaping monolithic concrete. Out of all the diversity of tectonic methods for monolithic housing, following are the main ones:

Bulkiness--the three-dimensionality of the building, the continuity and monolithicity of the three-dimensional spatial composition, and pliability through the separation of volumes within the unity of the overall composition;

Continuity of facade planes, their "run-over," and curvature of the surfaces or their joining at an angle other than a right angle;

Graphic tracing of facades through artistic treatment of the surface, the potential for an offset of openings by story and by diversity in their sizes; and

Variation of the tectonic structure of the facades with identical three-dimensional spatial solutions.

What has been said does not exhaust the list of positive qualities of the monolith or its inadequacies. This question is subject to further examination by scientists, architects, manufacturing engineers and, of course, builders. Today one can assert with confidence that, by means of industrialized types of monolithic housing construction, the republic's architects are obtaining a wide range of architectural resources for the creation of emotional architectural ensembles. The republic needs monolithic housing construction, which would consider the architectural requirements of urban and rural construction and also the real engineering potential of its execution, in its own program.

This is the word for leading scientists and specialists in this field.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

ARCHITECTS TO HAVE GREATER ROLE IN RURAL CONSTRUCTION

Moscow STROITEL'NAYA GAZETA in Russian 23 Dec 79 p 3

[Article by V. Vishnyakov: "The Architect Has Come to the Village"]

[Text] Notes from the 9th Plenum of the Administration of the USSR Architects' Union.

As has already been reported, the 9th Plenum of the Administration of the USSR Architects' Union, which discussed questions of the architectural shaping of rural communities and the creative problems of architects, convened 20-21 December in Moscow.

G. Orlov, First Secretary of the Administration of the USSR Architects' Union, opened the plenum. Secretary of the Administration of the USSR SA [Architects' Union] G. Il'inskiy delivered the main report, and Chairman of the Administration of the Moscow Organization of the USSR SA V. Stepanov, Chairman of the Leningrad Organization of the USSR SA S. Speranskiy, Director of TsNIIEP grazhdansel'stroy [Central Scientific-Research Institute for the Experimental Design of Rural Housing Construction] B. Makhan'ko, members of the Administration of the USSR SA, representatives of the architectural society, and agricultural workers and builders from the country's republics, krays and oblasts joined in the discussions.

Gosgrazhdanstroy [State Committee for Public Building Construction and Architecture] Chairman G. Fomin spoke to the plenum.

USSR Minister of Rural Construction S. Khitrov, sector chief of the CPSU Central Committee Construction Section A. Kosogov, and CPSU Central Committee Construction Section instructor A. Koshkin, participated in the plenum's work.

> The plenum adopted an appeal to the country's architects who are participating in the major work on transforming rural communities.

During a break between sessions, while strolling among the displays spread out in the foyer, I talked with one architect who is known as an expert on the village. And here he disconcerted me:

"We do not really know the village. We design the village house, of course, but that isn't what I mean. I mean vocational sophistication, do you understand? About the architectural ear, so to speak. Architecture for all the centuries has turned its gaze to the city."

I nodded, but only later--during the plenum's session--did I comprehend how accurate this remark was.

About [illegible] million people reside in our villages and hamlets today. A third of all housing construction in the country is in the village, and the volume of design work for construction in the countryside is 140 million rubles per year. In recent years the state has allocated gigantic resources to reconstruction of the village. Much has been done. Including that done by architects. But many mistakes also have been made. And some of them are on the conscience of the architects.

Well, here is a typical and not so ancient example of straightforwardness in implementing the rural reconstruction program contemplated by the party, which [illegible] Ilinskiy, Secretary of the USSR Architects' Union Administration, spoke about in his report. The mission is to overcome the considerable differences in living conditions in the city and in the village. The method is to consolidate the village by eliminating so-called settlements "without a future," and by building them up with urban-type buildings--rapidly and economically, as is said. The reportmaker named an astounding figure: it was found that 41 percent of the rural communities in Poltavskaya Oblast alone, 41 percent in Khar'kovskaya Oblast, and 85 percent in Dergachevskiy Rayon had fallen into the "without a future" category. The authors of this simplified scheme had not considered all the negative social and economic consequences of such measures.

The family plots that were abandoned had left the realm of economic use, the outflow of villagers to the city was not reduced, and the birth rate continued to decline--so the village grew old, and the loss of housing still completely suitable for use turned into large state expenditures on compensation therefor (computations have shown that, with large-scale collective relocation, more than 50 billion rubles will be required just to make up for the housing inventory torn down). This is the price of rapid "economizing." Something similar also happened in Georgia.

But here in Belorussia, where transformation of the structure of rural quartering is being done on the bases of a comprehensively substantiated program for the distribution of productive forces and the resettlement connected with it, this process is going on successfully.

errors occurred not because the general path for reorganization of rural communities was incorrect but because its implementation did not always provide for adequate continuity in the development of the village.

The address of sovkhoz director I. Vasil'yev, who shared thoughts about what is necessary and what is not necessary in building for the village, sounded a sharp emotional chord during the plenum. By way of illustration, he cited living examples from his Verkhnyaya Troitsa settlement. This name, surely, is known to many. It has been making the pages of newspapers and magazines and it has been sounded from speakers' rostrums, being uttered, as a rule, with a touch of pride. And suddenly a man who has participated most actively in the creation of this experimental demonstration settlement and has been living in it, announces that the residents "are not entirely satisfied with their settlement."

The settlement apparently has everything--both comfortable housing with the conveniences and various servicing establishments, but the peasants yearn for the cow and the crowing of the rooster. Recalling the fact that the output of auxiliary economic activities yielded no small addition to the public pantry, one should not forget either about another aspect of the problem. Work in auxiliary economic activity with children brings up workers who will love the land and will know how to work on it.

The orator was rewarded with applause, and then another person ascended the rostrum--I. Medvedev, chief architect of Lipetskaya Oblast, who invited those present to visit a certain Chastaya Dubrava village, where, "instead of little houses under thatched roofs, attractive five-story housing has risen up, in which, as is said, the workers of a "bee-raising complex" reside without rejoicing.

Who is right? Yes, most likely the main reportmaker, who asserted that the more correct approach to solving this problem is a skillful correlation of the private plot with the sectional apartment houses that are substantiated by the specific conditions, keeping in mind [illegible] demographic peculiarities of the population, the location of the particular village, special agricultural production and many other things. And there is more to consider. Consider the actual complications of day-to-day existence, and try to listen to all its requirements with a view to satisfying them and to guiding that existence.

They say that there's no arguing with taste. But they argued here. And fairly heatedly. The fact is that in the near future 60 plants that will produce houses planned by offices that design for reinforced concrete will be moved to the village. The chairman of the Moscow Organization of the USSR Architects' Union V. Stepanov, after noting reasonably that faceless identical boxes "will not take root in the rural dweller's heart," stated that the only way to diversify them is to decorate the facades, to which the Moscow architects who are sponsors for construction projects of Nechernozem'ye [nonchernozem zone of the RSFSR] are dedicating hours of their spare time.

Speaking after him, TsNIIEP grazhdansel'stroy director B. Makhan'ko reported the decoration of reinforced-concrete homes with absurd props that had nothing in common with either nationality characteristics or with people's architecture, reproaching, at the same time, the theoreticians of architecture and the Architects' Union, who apparently had not noticed the threat of tastelessness that was impending.

It is easier to convince a person that black is white than that his taste is not above reproach. And it is not always necessary to convince. But in the given case we are talking not about one man but about millions of rural dwellers, who will experience the completely real educating (or antieducating) effect of the houses being stamped out by the SSK's [rural construction combines]. While it is still not too late, it seems necessary, nonetheless, to evaluate their esthetic qualities objectively. It would seem that this is completely within the powers of our theoreticians.

Moreover, in searching for diversity and beauty of rural industrialized housing, one cannot be restricted only to the decor. For there is a potential, while remaining faithful to the industrialized method, to provide flexibility in planning by means of the final assembly elements. There are also appropriate developments and suggestions. It would seem that this is a promising area.

Thus there is a multitude of questions. As in any new business. But nowhere on a greater scale than here. "In light of our tasks, do we know the life of rural dwellers enough to solve correctly questions of organizing the buildup of villages?" asked the reportmaker. And he himself answered, "Unfortunately, not always."

The appeal adopted by the plenum is stimulating the country's architects to stay in step with social, scientific and technical progress, to strengthen creative collaboration with all specialists who are working in the rural construction field, to raise the vocational mastery thereof, and to work more actively in the village. It is necessary above all to respond to the appeal with deeds.

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CONSTRUCTION, CONSTRUCTION MACHINERY, AND BUILDING MATERIALS

PROBLEMS, POSSIBILITIES FOR CEMENT

Construction Projects Lack Cement

Moscow STROITEL'NAYA GAZETA in Russian 9 Jan 80 p 3

[Article: "More Cement for Construction Projects"]

[Text] Superintendents at many construction projects and reinforced concrete products plants begin their work day on the telephone "forcefully demanding" cement. Their messengers spend all their time at the cement enterprises. Construction workers have never before experienced such a shortage of cement.

Why is an industry that today produces much more cement than any other country in the world not in a position to satisfy the needs of construction projects and plants? The crux of the matter is in the disproportion of supplies resulting from a number of enterprises in the industry that chronically fall behind. For this reason there was a shortfall of several million (million!) tons of cement. According to supply agency orders, these million tons were intended for construction projects and precast reinforced concrete plants that just did not receive them.

An especially difficult situation has been taking shape in Uzbekistan. Two technological production lines that use the dry method of production and have a production capacity of 1,150,000 tons each were put into operation several years ago at the Navoiysk plant. But to put something into operation does not mean it will operate, for you can lead a horse to water but you can't make him drink. Its projected productivity has only partially been put to use. This one plant alone failed to supply several hundred thousand tons of cement to republic construction projects during the last year. Practically no one tries to hide its failure to deliver supplies. About 15 (of 80) cement enterprises still do not meet their goals. Numbered among them are the Karagandin, Starooskol', Kamenets-Podol', Gornozavod, Checheno-Ingush, and other plants.

There is also a problem with the fact that a majority of enterprises that lag behind are located in places where industrial, agricultural and civil-housing construction is concentrated. Therefore, their poor work directly affects the tempo of erecting sites that are important for the national economy. Thus, the cement industry has today become the chief reason for the lag in large construction projects in a number of cases.

And this is said about an industry that just recently had firmly occupied a leading position in All-Union socialist competition. What has led to this current failure? There are several causes. The basic reason is poor maintenance of technological equipment. This is precisely why the basic apparatus of cement plants--the rotary furnaces--are often shut down for emergency and unplanned repairs. Lining them for such reasons mean that projected time periods of service cannot be sustained. And every shutdown of a complex heat engineering unit means a loss of hundreds of tons of cement.

Several years ago the cement industry's maintenance service was reorganized with good intentions. The maintenance shops at the plants were removed and placed under the authority of a specialized subdivision in the Soyuztsemremont [Union Cement Maintenance] system. However, due to a number of reasons, chiefly of organizational character, Tsemremont is not coping in the best manner possible with the responsibilities which are entrusted to them. The complex equipment at cement plants does not receive the necessary care and maintenance. The consequence of such organizational errors retards the productivity of basic technological equipment at many plants which is reflected in the situation at job sites that do not receive the cement which was intended for them.

At the same time one effect of the turnover of personnel is the increased deterioration of equipment at a number of enterprises. It has taken on threatening dimensions at a number of different plants. These are the conditions at the Navoiysk, Checheno-Ingush, Karachayevo-Cherkes, and several other cement enterprises.

It has now been decided to reinstate maintenance services at cement enterprises. Only the large scale work of capital repairs and modernization of basic equipment have been left to the specialized Tsementremont. It is very important that this reinstatement period not be overly drawn out.

While quickly restoring maintenance service at plants, the problem of increasing turnover of personnel, especially of the leading specialists, should be dealt with no less persistently. One of the decisive ways is to provide cement workers with comfortable housing and preschool institutions for children and to establish the necessary cultural amenities and everyday services. Builders are also called on to add their contribution, which is of no small importance. It is very important that allotted funds for erecting housing units and cultural and everyday service buildings are put to full use so that the planned projects will be put into operation on time.

Much can be done in this regard by the cement workers themselves. A clear conformation of this is found in the experiences of such leading industry enterprises as the Angar cement and mining combine, the Sebryakov cement plant, the "Akmyantsement" and "Novorostsement" production combines, where concern for the individual person and for improving working conditions are placed on the same level as fulfilling important production goals. The personnel turnover is minimal here. The enterprises work at a consistent pace. Year in and year out, month after month, the plans are fulfilled and exceeded. Unfortunately, the experience of these top-rate people does not extend throughout the industry with the persistence as it deserves.

Activating socialist competition among large kiln machinists who work at 185 meter rotary furnaces and totally new technological production lines that use the more progressive dry method can provide just as great reserves for increasing the production of cement.

Unfortunately, this latter method is not devoid of constructional defects. It is the duty of constructors, designers and machine assemblers to quickly eliminate the flaws that have shown up when putting new equipment into operation. In this way, they will succeed in solving two important problems: to provide the construction projects that are located nearby with an abundance of cement and to give the "green light" to modern highly productive equipment. The cement industry's future is in the dry method of production. It must be hastened in every way possible.

Cement plant personnel are also counting on the fact that the mechanical-maintenance enterprises in the USSR Ministry of the Construction Materials Industry and the Ministry of Construction and Road Machine Building will at last begin to provide them with high quality spare parts. Actually, a significant portion of the breakdowns that occur in the cement industry result from their extremely low quality. Eliminating this problem would mean a great reduction in idle time of basic cement apparatus that is not provided for by the plan.

A crucial and urgent problem for party, trade union and komsomol organizations and economic administrators in the industry is to get the cement industry out of this bind. "There shall be no cement enterprise that fails to fulfill the plan"--such a motto must become a reality in the final year of the Tenth Five-Year Plan.

Production, Cement Grades Problems

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 13 Dec 79 p 2

[Article by special correspondent Yu. Bychek: "The Controversy Surrounding Cement"]

[Text] The article by A. Boldyrev, Deputy Minister of the USSR Construction Materials Industry, "A Second Product," published on 24 July of this year aroused mixed feelings. Really, what better way is there of dealing with technological waste products from metallurgy than using them as cheap and high quality raw materials for the cement industry instead of burying them. But we should be careful when placing the production of slag Portland cement among the number of basic methods for utilizing metallurgical slag. Less than a third of the waste may be used for this purpose and only 20 to 30 percent of the useful properties of this third may be utilized.

A. Boldyrev complains as if science has not found effective means of utilizing the 23 million tons of steel smelting, electrophosphorous and other types of slag that are annually added to the previous metallurgical "supply." It is impossible to agree with this. This is such a means--the production of slag alkaline cement. On the basis of this, by the way, concrete with exceptionally high grades of strength are obtained--up to "1,400" which exceeds the "ceiling" of slag Portland cement by a factor of 3 or 4. The production of slag alkaline cement materials has less than half the .

But it is much easier for the ministry to increase the production of traditional types of cement with admixtures from ground blast furnace slag than to trouble itself with organizing the production of new types that require other forms of technology.

Thus, no matter how many of A. Boldyrev's economic and ecological considerations may support the rate of growth of the gross indicators to the detriment of qualitative considerations, such a course does not answer either the problems of protecting the environment or the interests of capital construction and the national economy.

A. Savel'ev, chief specialist of Pechory NIPI [Scientific Research and Deisng Institute of Petroleum]; V. Shevkoplyas, engineer at the "Promstroy" trust; I. Lubenskiy, engineer at the "Komigazstroy" trust.

This letter is only one of the readers' responses to the article, "A Second Product." Engineer A. Kapliyev from Kursk, V. Sizov, a candidate of technical sciences from Moscow, assistant professor I. Gvozdarev of VZISI [All-Union Correspondence Institute of Engineering and Construction], A. Popov, professor of the Moscow Architectural Institute, engineer N. Proskuryakev, and others all wrote to us of their disagreement with A. Boldyrev's point of view.

How do the supporters wish to correct the present course of cement production?

The time has long since passed when builders were pleased with any type of cement. Today, the first consideration is quality. Frankly speaking, builders find little joy in the fact that the average grade of cement is gradually increasing and now exceeds "400" since there is no way possible to obtain such a degree of strength in the items for which it is needed without using one and a half or even two times as much cementing material.

In general, the volume of production for average grade cement comprises more than four-fifths of the total volume. The specific proportion of cement with higher strength (without admixtures) that was produced over the last few years fluctuated near one percent. And this is about four times greater than the minimum amount needed, as cement workers themselves admit. Workers at the USSR Ministry of the Construction Materials Industry criticize builders for using high grade cements in preparing plaster and brick laying mixtures, where the higher strength is completely unnecessary. But they themselves are not engaged in increasing the production of low grade cement ("150," "200") although the demand for it comprises 20 million tons annually.

Thus, two points of view for the same problem. Which is closer to the truth?

Interview One

It is with First Deputy Minister of the USSR Construction Materials Industry A. Boldyrev.

"Three years ago, due to I. Gvozarev's report, a USSR Gosplan GEK [State Commission of Experts] was occupied with the problem of cement and came to the conclusion that the Ministry was correctly orienting its enterprises."

The conclusion of GEK is a very serious argument. And, while arranging for a meeting with chairman, professor G. Krasnikovskoy, I was sure that this meeting would help to conclusively "dot the i's and cross the t's."

Interview Two

"During the course of several months," Georgiy Vladimirovich informed us, "a special GEK subcommittee studied the question. In its first version the conclusion differed so sharply that it was necessary to make several changes in the composition of the subcommittee and to name a new chairman and a scientist-secretary. As a result a second version of conclusion was prepared which was signed by the majority of subcommittee members without any alterations."

Establishing the truth by eliminating the opponents? I must admit such a method seemed a little strange to me. Yet three thick volumes of "Cement Matters" testify to the fact that this is exactly what happened.

Interview Three

"It is possible to judge the 'objectivity' of the investigation," said L. Mahalov, director of the USSR Gosstroy Construction Industry Division, "by this fact. The commission of experts asked the opinion of executives in contract ministries and the Construction Industry's NTO [Scientific-Technical Organization] concerning the state of affairs in the cement industry. Then they shelved these opinions since the prepared rosy conclusion was not written in...."

Thus, what types of cement and in what quantities are needed today and will be needed tomorrow in order that their effectiveness would be at a maximum--this is the main question which my interlocutors did not conclusively answer. According to the opinion of A. Boldyrev and Iu. Kalugin, Director of the USSR Gosplan Construction Materials Division and A. Dmitriev, Director of the NII [Scientific Research Institute] on Cement who support him, it would be difficult to say that slag Portland cement is not the best material in terms of long range prospects. It is economical to produce since it requires half as much fuel and energy when compared with pure clinker types. And it meets the technological features of the basic consumer of cement--the precast reinforced concrete industry.

The arguments are, unquestionably, serious. Yet the objections also carry no less weight. Here is one of them. On the average for the country a complete technological cycle at precast reinforced concrete plants is completed once every 24 hours, and 2 or 3 times at a number of Main Moscow Construction Materials enterprises only. The reason for this is that pure clinker cement with no admixtures is used here.

This fact, reported to me by E. Lukiyenko, Director of USSR Gosstroy Subdivision on Cement, provoked the natural question: how to reduce the consumption of fuel and energy in capital construction more advantageously by means of "diluting" the production of admixtures at cement plants or by means of doubling and even tripling the productivity of ZhBI [Reinforced Conrete Industry] plants. Or can both methods be combined?

"As far as I know no one has conducted such comparative research," said K. Mikhaylov, Director of NIIZhB [Scientific Research Institute of Reinforced Concrete].

Such a direct and frank answer from the administrator of the leading scientific research organization on concrete and reinforced concrete problems.

A worker at USSR Gosplan, Yu. Kalugin, declared that such computations have been done, and as a result, a superior product of the first degree was derived. It is true, he noted, that it is extraordinarily difficult to "achieve" economy at ZhBI plants since many hundreds of these enterprises are dispersed among ten different departments; this is much easier to do at cement plants where, practically speaking, there is a single boss.

And what does Yu. Kalugin think relative to the fact that the USSR Ministry of the Construction Materials Industry does not wish to recognize that slag alkaline cement should be used? He does not reject the innovation directly.

"The idea is good," he says, "but undeveloped. Scientists have not yet worked on it one year...."

Meanwhile, the history of this idea goes back more than two decades, say his opponents. It is not just laboratory and theoretical history. The irrigating system troughs in Tatarbunary, constructed from slag alkaline concrete, after 15 years of use, doubled their strength and achieved a grade of "800." Regular cement troughs for the same period of time had to be replaced three times. And this is by far not the only example. Many others were brought up at the All Union Conference on slag alkaline cement which convened this summer in Kiev. At this conference it was also reported that any granulated slag, not just blast furnace slag, may be used to produce slag alkaline cement; that any aggregate may be used as a base for concrete and not just aggregate that has been washed or which has a certain size; that each ton of slag used for this purpose saves three rubles and more by diluting Portland cement with ground slag which is satisfactory for cement workers.

It seems to us that the most important thing is not so much the rubles themselves, but the fact that the cement industry's work should reflect to a greater degree the basic direction of technological progress in capital construction. We cannot justifiably evaluate the merits and deficiencies of any production process in any other way than by the final result for the national economy. And this clarity, judging from the specialists' answers to the questions taken from readers' letters, does not exist. And, apparently, it is premature to bring this problem "to a close." It must be studied from all angles.

Improved Quality of Cement

Moscow STROITEL'NAYA GAZETA in Russian 9 Dec 79 p 3

[Article by professor S. Mironov: "The Grade of Cement is Related to the Grade of the Plant"]

[Text] Portland cement is often received by NIIZhB [Scientific Research Institute for Steel Reinforced Concrete] laboratories from the Voskresen plant not far from Moscow. And, as a rule, after testing it against the standard it is found that the actual grade is below that which is recorded. Instead of "500" it is "400" or even "300."

But is it really only one plant that is guilty of this? In the last 10 years, based on NIIMosstroy [Scientific Research Institute for Bridge Construction] data, cement, was received at construction sites in the capital from the Belgorod, Shurov, Mikhaylov, Bryans and Podol' plants. And, as a rule, the products from these enterprises had an activity level on the average 12 percent lower than promised by the suppliers.

What brought about the discrepancy of plant record data and the actual activity of cement?

First of all, the cement plants themselves today achieve that grade indicated in the record by stretching it. Secondly, in GOST [State Standards] for 1976 there are certain favorable conditions for the methods used to test this. Calculating the loss of activity with the passage of time it is said in GOST 10178-76: "The plant-manufacturer guarantees that the cement conforms to all the requirements of modern standards, when observing the conditions for transporting it, up to the moment it is received by the cement user but not exceeding 4 months following shipment." This note is made because the plant-suppliers, knowing of this lowering of activity with the passage of time, do not guarantee any reserves against such losses.

Construction laboratories, the majority of which do not have equipment for standard testing, are not able to make an analysis under such rigid time frames. They select an amount of concrete and calculate its strength based on the grade indicated in the record. When pouring monolithic structures, calculations (predictions) are made based on the projected grade. It should not come as a surprise that the actual strength of concrete in such structures proves to be below the projected strength under all conditions.

It is well known that the accuracy of determining the activity level depends a great deal on the methods used for testing. To determine the strength characteristics of cement, GOST 310.1-76 and 310.4-76 suggest preparing samples (small beams from cement mixtures) without having the constant relationship betwen the water and cement equal to 0.4 as was the practice before, but instead correcting it so that the slump of a cone will be between 106-115 mm. According to this method the water and cement relationship may be not only within the usual allowable limits of 0.38-0.42 but even much less--0.35-0.36. In this case the grade of certain types of Portland cement and slag Portland cement are often a whole step higher than when the relationship is 0.4. It turns out that the very method of testing causes the inaccuracy. Such a situation, in my opinion, is intolerable. The water cement relationship could remain the fundamental stability characteristic of the activity of cement as well as the strength of concrete.

Certainly, the characteristics of the quality of cement based on its concentration and the slump of the cone are important but in no way fundamental. They can have influence as to whether the State Seal of Quality is conferred or when determining the kind of cement but not the grade. And when reviewing the methods for testing cement (and this necessity has already become urgent) the practice of checking the concentration of the mixture on the vibrating table must be abandoned since it is an anachronism. It must be tested on the very same vibration surface on which normal compaction of the mixture takes place.

Builders justifiably insist on including in GOST the precise limitation that the normal consistency for the cement test should not exceed the value of 0.26. Exceeding this value means only one thing--the manufacturer "overdid it" with tripolite admixtures. But adding a clinker of moisture retaining tripolite would mean lowering the activity of cement. For 20 years now scientists have insisted on regulating the standard consistency of the test, but unfortunately up to now, they have not been able to convince the leaders of the cement industry of this.

V. Sizova's article opportunely raises the question of the necessity of developing a reliable method for accelerating the determination of the strength of cement. But a standard accelerated method with a high degree of accuracy still does not exist. Nor is there one abroad. Too many factors affect the accuracy of any accelerated tests. "Recommendations for an Accelerated Evaluation of the Quality of Cement in Concrete and Designating its Composition," which I. Frenkel and I worked out, proved its value in practice. This method resulted in a guide for selecting the composition of concrete compiled by a staff of prominent scientists-concrete workers. It is valued by builders for the fact that during the course of 1 to 3 days it can simultaneously determine the grade of cement and concrete used with sufficient reliability on the basis of the cement-water factor.

The problem raised in the article "Cat in a Paper Bag" is not new. It must be solved through the application of accumulated knowledge. It is well known that the Portland cement obtained at the best domestic plants is on the level of worldwide standards.

Thus, while simultaneously increasing the volume of production all of the prerequisites are present for increasing the quality of cement. And, it is thought, the questions raised in the newspaper must become a topic for serious discussion by the USSR Ministry of the Construction Materials Industry and by construction ministries and departments.

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